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U.S.-BUREAU OF MINES

JOSEPH A. HOLMES, DIRECTOR

METAL-MINE ACCIDENTS IN THE UNITED STATES DURING THE CALENDAR YEAR 1911

COMPILED BY

ALBERT H. FAY

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PREFACE.

The available data concerning accidents in connection with metal and miscellaneous mineral mining in the United States are deplorably incomplete, and the one claim that can be made for the data published in this paper is that they are the best available. The funds at the disposal of the Bureau of Mines for the collection of such data have been inadequate for the purpose, and in a number of the States no satisfactory provision for such work has been made.

The plan that, it is believed, will yield best results in procuring satisfactory data on this subject is that of cooperation between the Bureau of Mines and the inspectors or other appropriate representatives of the States; as this will insure such uniformity in method and results as will make the data for each State comparable with that of any other State, and the data for the mining industries of the United States comparable with those of the mining industries in other countries. This plan will also have the merits of avoiding duplication in labor and cost, and of insuring satisfactory results at minimum cost to both the Federal Government and the several States.

The most striking fact brought out in the data published in this paper is the fact that in proportion to the number of employees the fatal accidents in metal mines exceed those in coal mines. This fact is all the more notable when it is understood that in the metal mines there is an entire absence of the gas and dust explosions that in coal mines caused from 12.75 per cent, in 1912, to 28 per cent, in 1907, of the total fatalities.

It should be understood by all parties interested that the primary purpose of collecting data relative to mine accidents is neither to fix responsibility nor to preserve a historic record of past experience. It is to make available a body of reliable data which will serve as a basis of preventive measures for use in future operations. And it is with this great purpose in view that the Bureau of Mines asks the active and cordial cooperation of the miners, the mine owners, and the State inspectors; and with each of these the Bureau of Mines will gladly cooperate for the same end.

J. A. Holmes.

METAL-MINE ACCIDENTS DURING THE CALENDAR YEAR 1911.

Compiled by ALBERT H. FAY.

INTRODUCTION.

Fatal accidents in metal mines in the United States are more numerous in proportion to the number of men employed than are the fatal accidents in coal mines. This fact is brought out by the figures collected by the Bureau of Mines and presented in this paper. Of the 165,979 men employed in the metal mines in the United States during the calendar year 1911, 695 were killed, which represents a rate of 4.19 per 1,000 men employed, as compared with 3.73 per 1,000 for the coal mines of this country for the same period, and 3.15 per 1,000 in the coal mines during the year 1912. The fatality rate due to accidents in the metal mines in a number of foreign countries is as follows: Transvaal, 4.29 per 1,000 men employed; France, 3.16; Spain, 2.25; Australian colonies, ranging from 0.67 to 2.23; Great Britain, 1.64; Japan, 1.59; Germany, 1.39; India, including coal mines, 1.18. The death rate in Mexico and Peru is much higher than that in the United States, the rate being 5.78 per 1,000 for each country, but it includes the accidents in the coal mines.

Comparison of the number of men employed in metal mines of the principal countries showing the fatality rate per 1,000 men employed.[a]

Year.	Country.	Number employed.	Fatalities per 1,000 employed.
	Australia:		
1911	New South Wales	19,363	1.81
1911	New Zealand	7,400	.67
1911	Queensland	13,202	.90
1909	Tasmania	6,054	.99
1909	Victoria [b]	26,473	1.16
1911	Western Australia	16,596	2.23
1910	Austria	20,664	.82
1910	France	18,542	3.16
1910	Germany	109,359	1.39
1910	German West Africa	6,933	1.30
1911	Great Britain	46,341	1.64
1911	India [c]	143,336	1.18
1910	Japan	86,770	1.59
1909	Mexico [c]	81,438	5.78
1910	Peru [c]	20,410	5.78
1910	Portugal	6,554	1.68
1908	Russia	181,334	.98
1909	Spain	96,901	2.25
1910	Sweden	13,775	1.23
1910	Transvaal	218,109	4.29
1911	United States	165,979	4.19

[a] Compiled from official reports.
[b] Average for 20 years.
[c] Includes coal mines.

SCOPE OF STATISTICS.

The following tables giving the accidents in the metal mines in the United States for the calendar year 1911 have been compiled by the Bureau of Mines from reports received directly from the operators. The bureau's list of operators contains about 13,000 names, representing all stages of the industry, from the lone prospect to the mine that is on a dividend-paying basis. In the collection of these statistics no distinction was made concerning the magnitude of the operations. The man who is prospecting or doing assessment work certainly encounters many of the dangers that surround his brother working in a large mine. It is barely possible that if statistics were as accurately recorded, reported, and compiled for mines employing 20 men or less, as are the statistics for the large mines employing hundreds or thousands, the casualty rate would be surprisingly high. The prospector is usually far from medical aid and hospital service; many times he is working alone and has no means of communicating with anyone in case an accident occurs; he is exposed to all kinds of weather; and he does not always have the best tools and apparatus, which tend to lessen danger; and for these reasons he should not be ignored when accident statistics are being collected. His work is certainly important and is necessary for the growth of the industry.

The first requests for the information contained in this report were mailed early in January, 1912. The majority of these were answered immediately. Second, third, and fourth requests were sent to those who failed from one cause or another to respond, so that eventually replies were received from more than 90 per cent of the names on the list. A large number reported their mines as "idle," "abandoned," or "out of business." The statistics herein tabulated represent 5,232 operators who actually worked their mines during the year. As far as can be ascertained, all of the large companies made out detailed reports, so that, if measured by production, the statistics given herein are representative of the industry. The small number who did not reply, though representing nearly 10 per cent of the names on the mailing list, form a much smaller percentage of the industry when compared as to the amount of ore produced. In this number are represented a few prospectors, promotion companies, moribund corporations, and abandoned properties.

One reason why some operators did not reply, judging from many of the answers received, is that their mines or prospects were small, and that since no accidents occurred, a reply was not necessary. It is hoped that all of the operators, whether large or small, will consider their property as worthy a report on its mine accidents for the year 1912, giving the number of men employed and the days worked. The true accident ratio can be obtained only when complete reports are furnished. Each mine that fails to report its 4, 6, or 10 men, reduces the total number reported employed, and the State totals when obtained for the year, are entirely too small. It is believed that the fatal accidents were accurately reported. With all of the fatal accidents reported and all of the miners employed accurately determined, the true rate of killed per 1,000 employed is easily obtained. With all the fatalities reported and only 90 per cent of the men employed reported, the death rate will appear 11.1 per cent too high. As an example: Suppose one State reports 50 fatalities when 10,000 men are actually employed. This will give a death rate of 5 per 1,000 men employed. If the totals for the same State show 50 killed and only 9,000 men (90 per cent) are reported as employed, the death rate is thereby raised to 5.55 per 1,000. This is an injustice to the State, the industry, and the mining companies, which can be removed by each operator making a complete report.

The tables in the following pages are arranged so as to represent five divisions of the mining industry as follows:

Copper mines.—All of the copper mines and prospects that were reported in operation in the various copper-producing States are included. The list represents 396 operators.

Iron mines.—All of the important iron mines, representing 207 operators, are given in the set of tables showing statistics relating to iron mining.

Lead and zinc mines (Mississippi Valley).—The lead and zinc mines, represented by reports of 483 operators of that region, are grouped together as representing an industry in which general conditions are similar.

Gold and miscellaneous metal mines.—Under this heading are the gold mines, both lode and placer, silver mines, lead-silver mines, gold-silver mines, the lead and zinc mines other than those in the Mississippi Valley, and mines working ores of quicksilver, manganese, tungsten, vanadium, chromium, etc. Pyrite mines are included in this class, as the cinder is used in some of the metallurgical works for its iron and copper content. Bauxite mines, since bauxite is the principal source of metallic aluminum, are classed under this division.

Miscellaneous mineral mines.—The miscellaneous mineral mines include those for asbestos, asphaltum, barite, feldspar, garnet, graphite, gypsum, kaolin, mica, phosphate rock, quartz, talc, salt, and soapstone.

The tables given under each division show the number killed, seriously injured, slightly injured, the number of operators reporting, number of men employed, both on surface and underground, days of labor performed, and the rates of deaths and injuries per 1,000 men employed.

A summary of the number employed in all the metal mines in the United States, with the number killed and injured, rate per 1,000 men employed, and the number of widows and orphans is given in Table 1. The causes of these accidents, together with the percentage of accidents due to any one cause, are given in detail in Table 2.

ACKNOWLEDGMENTS.

The acknowledgments of the bureau are due to the State mine inspectors and other officials of the various State mining departments who have rendered invaluable assistance in verifying and correcting from their records, often at the expense of considerable time and trouble, the data reported to the bureau by the operators. To both the operators and the State mining officials the Bureau of Mines extends its thanks for this hearty cooperation.

PUBLICATION OF ACCIDENT STATISTICS.

In the publication of these statistics, it is not the purpose of the bureau to usurp in any way the field covered by the annual or biennial reports of the State mine inspectors or mining departments. A number of States have no inspectors for metal mines and there is a lack of uniformity in the reports issued by the various States that have inspectors. The tabulated forms in which these statistics are here published must be regarded as tentative and subject to revision. The Bureau of Mines will be glad to receive suggestions from State inspectors and others interested in mining as to the form in which data can be presented most effectively and as to how their publication can be made most useful to the mining industry.

The figures given herein were submitted to the various inspectors, in the case of those States having an inspection service, for verification, and in most cases the bureau has received their hearty cooperation. Only a few of the States collect statistics covering serious injuries and still fewer give any attention to the slight injuries; so that on these points it is impossible to check closely. The total number of deaths reported in the various States agrees closely with the inspectors' reports, yet there is some variation as to the classification. The bureau has maintained its original classification on account of the difficulty of devising a scheme that would conform to all of the States. Again, since some of the States have no mine-inspection service, the use of the same classification for the entire country seemed to be the only method. This places all of the statistics on the same basis, and it will render easier the making of comparisons and the drawing of conclusions.

SERIOUS AND SLIGHT INJURIES.

The definition of an accident, which is the fundamental question, is different among the various mining companies. One operator may require a detailed report of any casualty, however slight, that delays the worker, or that draws blood; another may not consider an accident worthy of record that does not come to the attention of the foreman or shift boss. One of the large mining companies defines an accident as follows:

> An accident is any internal or external injury, feigned or actual, involving any or no loss of time, resulting directly or indirectly from our operations, regardless of cause

or degree of severity, occurring to the person of an employee while going to, coming from, or actually engaged on company work or property. It also includes an accident to any nonemployee resulting directly from any of our operations.[a]

Many companies have so increased the list of reportable accidents that statistics seem to show a far greater number of casualties now than in the past. This is especially true of the iron and copper mines in the Lake Superior district.

If the accident rate in one State seems unusually high when compared with other mining districts, it may be due to the fact that more complete records have been kept. The larger companies in the West are keeping excellent records in connection with their hospital departments. The companies employing only a few men with no hospital service, as a rule do not keep a complete register of the serious and slight accidents, hence these ratios in some States may be low, but such low rates do not necessarily indicate that the danger is less than in other States.

The distinction made in this paper between a serious and a slight injury is entirely arbitrary and is more or less tentative. A line had to be drawn at some definite point, and hence a serious accident is considered in this report as one that would disable a man and keep him from duty 20 days or more. This class includes such injuries as broken arms and legs, loss of eye, and severe cuts and bruises.

A slight injury is considered as one that involves a loss of time of not less than one day nor more than 20 days. Under this class may be placed such injuries as cuts, sprains, mashed fingers, bruises, dirt in eye, slight burns, effect of powder smoke, etc. Of course any slight injury may become infected and thus result in a serious accident as defined above.

METAL-MINE ACCIDENTS AND COAL-MINE ACCIDENTS COMPARED.

Table 3 gives in parallel columns the number employed, the number killed, and the death rate per 1,000 employed in both metal mines[b] and coal mines in the United States for the year 1911. It will be noted in this table that the total number of men employed in the coal mines of the United States was 728,348 as compared with 165,979 men in the metal mines. The total number killed in the coal mines was 2,719 as compared with 695 in the metal mines. The death rate in the former was 3.73 per 1,000 and in the latter 4.19 per 1,000 men employed. The majority of States have established systematic coal-mine inspection, which tends to reduce the accidents; whereas in many of the States where metal mining is carried on there has been no inspection of mines, and in some States there has not been adequate inspection of metallurgical plants, foundries, rolling mills, refineries, etc., which employ in the aggregate nearly 1,000,000 men.

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[a] From a technical paper by D. E. Woodbridge, now in course of publication.

[b] Including miscellaneous mineral mines.

On account of the large disasters that occur in the coal mines and the prominence given to them by the newspapers, coal mining is usually considered more hazardous than metal mining. The metal mines as a rule do not claim their death toll in disasters that involve many men.

The large majority of men killed in the metal mines are killed one at a time, and in the list of accidents for 1911 the largest disaster reported was a mine fire, by which 17 men were killed. The second largest was at a mine where 14 men were killed by being buried under a mass of rock, resulting from a slide of bank. The third largest was where water broke into a shaft from old workings and caught 12 men. Two mine fires occurred in each of which 7 men lost their lives. One hoisting accident claimed 6 and one powder explosion killed 6 more. Altogether, there were reported in the metal mines in 1911, 40 accidents, in which 2 or more men were killed at one time, making the total thus killed 135, or 19.5 per cent of all the fatalities.

COPPER MINES.

The figures given in Tables 4 and 5 are compiled from the reports of 396 operators employing 44,693 men, of whom 31,557 were employed underground and 13,136 on the surface. The total number of deaths and injuries due to accidents reported is as follows: Deaths 238, or 5.33 per 1,000 men employed; serious injuries, 1,326, or 29.67 per 1,000; and the slight injuries 9,016, or 201.73 per 1,000. Of the total number of fatalities, 199 occurred underground, making this rate per 1,000 men employed, 6.31. The surface fatalities were 39, or 2.97 per 1,000.

IRON MINES.

The figures given in Tables 6 and 7 are compiled from the reports of 207 iron-mine operators, who employed 45,953 men, of whom 25,461 were employed underground and 20,492 as surface men, including those engaged in steam-shovel work. The number of deaths and injuries resulting from accidents in these mines is as follows: Deaths 197, or 4.29 per 1,000 men employed; serious injuries 2,032, or 44.22 per 1,000; and slight injuries 8,690, or 188.3 per 1,000. Of the total number of fatalities, 136 occurred underground, or 5.34 per 1,000 men, and 61 employees were killed while engaged in surface work, making this rate 2.95 per 1,000.

LEAD AND ZINC MINES.

The figures given in Tables 8 and 9 are for the lead and zinc mines of the Mississippi Valley. The lead and zinc mines of other States are grouped with miscellaneous metal mines on account of the difficulty of making a distinct classification, as lead and zinc occur in so many places as associated metals in silver ores, as, for instance, in the lead-silver mines of the Coeur d'Alene district, Idaho. The Mississippi

Valley lead and zinc mines form a class by themselves and hence are easily segregated.

The statistics given herein embody the reports of 483 operators employing 12,521 men, of whom 9,247 are underground employees and 3,274 surface men. The total number of deaths and injuries due to accidents is as follows: Killed 43, or 3.43 per 1,000 men employed; serious injuries 177, or 14.14 per 1,000; and slight injuries 1,311, or 125 per 1,000. Of the number of men killed, 32 fatalities occurred underground, making this rate 3.46 per 1,000 men employed, while 11 men were killed on the surface, or 3.36 per 1,000 men.

GOLD AND MISCELLANEOUS METAL MINES.

The accidents in and about the gold and miscellaneous metal mines are compiled in Tables 10, 11, and 12 from the reports of 3,817 operators, employing 48,919 men, of whom 35,176 were underground and 13,743 surface men. The deaths and injuries due to accident are as follows: Deaths 193, or 3.95 per 1,000 men employed; serious injuries 540, or 11.04 per 1,000; slight injuries 3,078, or 62.92 per 1,000. Of the total number of fatalities, 163 occurred underground, or 4.63 per 1,000, and 30 on the surface, or 2.18 per 1,000.

The rates of serious and slight injuries are low when compared with the iron and copper mines. This may be accounted for in part by reason of the fact that this group includes many prospects and small mines that keep no records. Fatal accidents impress themselves on the memory and are easily reported. The serious and slight injuries are soon forgotten if not recorded. Many of these mines are in States where there is no inspection, and they are not required to keep accident records. Many of the larger companies operating gold and silver and lead-silver mines of the West have, for their own protection, hospital service and medical aid for their employees. The reports from some of these large companies show that excellent records are being kept.

MISCELLANEOUS MINERAL MINES.

The reports of 329 miscellaneous mineral mines are compiled in Tables 13, 14, 15, and 16. These mines employed 13,893 men, of whom 3,182 were employed underground and 10,711 on the surface. The total number of deaths and injuries due to accidents reported is as follows: Deaths 24, or 1.73 per 1,000 men employed; serious injuries 94, or 6.77 per 1,000; and slight injuries 313, or 22.53 per 1,000. When compared with the copper and iron mines, these ratios seem exceedingly low. Judging from the reports received, this is largely accounted for by the fact that the mines, being small and employing an average of only 42 men each, do not keep complete records. The majority of these mines are in States where there is no State inspection, and are therefore not obliged to keep accident records and make reports thereon.

ACCIDENT STATISTICS BY STATES.

A compilation of the accident statistics by States is given in Tables 17 and 18, representing 5,232 operators employing 165,979 men, of whom 104,623 were employed underground and 61,356 on the surface. The total number of fatalities and serious and slight injuries due to accidents is as follows: Deaths 695, or 4.19 per 1,000 men employed; serious injuries 4,169, or 25.12 per 1,000; and slight injuries 22,408, or 135.01 per 1,000. Of the total number of fatalities, 542 occurred underground, or at the rate of 5.18 per 1,000, and 153 were killed on the surface, or 2.49 per 1,000 employed. The high mortality rate in New Jersey is due to one disaster in which 12 men were killed at one time. Barring this accident, the rate would have been 6.32 per 1,000. In Nevada there were two mine fires in which 24 men were killed. Had it not been for these two serious disasters, the rate for Nevada would have been reduced to 5.79 per 1,000 men employed.

It will also be noted in this table that in Minnesota 33 men were killed in underground work, or 4.30 per 1,000, while 43 were killed on the surface, or 4.85 per 1,000. The surface casualties include one accident where 14 men were killed by a single slide of rock. The other principal cause of deaths in steam-shovel mines is by railroad cars and locomotives, wherein 12 men were killed in various accidents. Steam-shovel mining includes the risks of railroad work as well as the dangers incident to ordinary open-pit mining.

CAUSES AND DISTRIBUTION OF ACCIDENTS.

In Table 19 is given the percentage of accidents due to any one cause in each group of mines and for all of the mines combined. It will be noted, for instance, that 34.46 per cent of the deaths in copper mines, 35.44 per cent of the serious injuries, and 31.09 per cent of the slight injuries are due to falls of rock or ore from roof or wall. A similar comparison may be made for any group of mines for any one of the 37 causes enumerated. This table also shows that approximately two-thirds of the total deaths and injuries that occur in and about the metal mines are caused as follows:

Of the fatal accidents, 32.52 per cent are due to falls of ore or rock from roof, wall, or bank; 11.23 per cent to explosives; 15.39 to falling down stope, shaft or winze, and 5.32 per cent to mine fires.

Of the serious accidents, 31.37 per cent are due to falls of roof, wall, or bank; 19.05 per cent to car and haulage systems; 12.19 per cent to machinery; and 6.41 per cent to timber and hand tools.

Of the slight accidents, 28.86 per cent are due to falls of roof, wall, or bank; 15.52 per cent to car and haulage systems, 10.10 per cent to machinery, and 8.02 per cent to timber and hand tools.

TABLE 1.—*Number of men employed and number of men killed and injured in and about the metal and miscellaneous mineral mines in the United States in the calendar year 1911.*

Mines.	Number employed.	Number killed.		Number seriously injured.		Number slightly injured.		Widows.	Orphans.
		Total.	Rate per 1,000 employed.	Total.	Rate per 1,000 employed.	Total.	Rate per 1,000 employed.		
Copper	44,693	238	5.33	1,326	29.67	9,016	201.7	91	195
Iron	45,953	197	4.29	2,032	44.22	8,690	188.3	114	237
Lead and zinc[a]	12,521	43	3.43	177	14.14	1,311	104.7	26	40
Gold and miscellaneous metal	48,919	193	3.95	540	11.04	3,078	62.9	61	118
Miscellaneous mineral	13,893	24	1.66	94	6.77	313	22.5	5	10
Total	165,979	695		4,169		22,408		297	600
Average			4.19		25.12		135.0		

[a] Mississippi Valley only.

TABLE 2.—*Number of men killed and injured in and about the metal mines in the United States, giving cause of death or injury, in the calendar year 1911.*

Mines.	Underground.														Shaft.					
	By fall of rock or ore from roof or wall.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity (shock or burns).	By machinery (other than mine locomotives or machine drills).	By mine fires.	By suffocation from natural gas.	By inrush of water.	By other causes.	**Total, underground.**	By falling down shaft.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By other causes.	**Total, shaft accidents.**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**		**14**	**15**	**16**	**17**	**18**	
KILLED:																				
Copper	82	6	18	5	19	6	......	6	3	12	2	......	1	**160**	17	5	......	......	17	**39**
Iron	45	1	11	6	10	2	......	......	2	8	1	12	5	**103**	23	3	1	......	6	**33**
Lead and zinc (Mississippi Valley)	18	1	3	2	......	......	......	2	......	......	......	......	2	**28**	1	2	......	......	1	**4**
Gold and miscellaneous metal	40	2	24	7	18	6	......	7	5	17	5	......	2	**133**	16	8	3	......	3	**30**
Miscellaneous mineral	6	......	6	......	......	......	......	......	......	......	......	......	......	**12**	......	......	......	......	......	**0**
Total	191	10	62	20	47	14	......	15	10	37	8	12	10	**436**	57	18	4	......	27	**106**
Per cent of grand total killed	27.48	1.44	8.92	2.88	6.76	2.01	......	2.16	1.44	5.32	1.15	1.73	1.44	62.73	8.20	2.59	0.58	......	3.88	15.25
Per cent of class total killed	43.81	2.29	14.22	4.59	10.78	3.21	......	3.44	2.29	8.49	1.84	2.75	2.29	100.0	53.78	16.98	3.77	......	25.47	100.0
SERIOUSLY INJURED:																				
Copper	470	68	22	271	59	41	91	1	37	......	......	......	91	**1,151**	12	12	1	3	14	**42**
Iron	467	177	57	272	75	46	66	2	37	......	......	......	170	**1,369**	17	18	......	4	23	**62**
Lead and zinc (Mississippi Valley)	53	3	19	15	4	......	5	......	11	......	1	......	13	**124**	5	4	1	......	5	**15**
Gold and miscellaneous metal	207	19	36	40	21	17	24	......	18	......	......	......	38	**420**	7	6	......	5	15	**33**
Miscellaneous mineral	17	......	5	8	2	1	4	......	3	......	......	......	6	**46**	1	......	......	......	......	**1**
Total	1,214	267	139	606	161	105	190	3	106	......	1	......	318	**3,110**	42	40	2	12	57	**153**
Per cent of grand total seriously injured	29.12	6.41	3.33	14.54	3.86	2.52	4.56	0.07	2.54	......	0.02	......	7.63	74.60	1.01	0.96	0.05	0.29	1.36	3.67
Per cent of class total seriously injured	39.04	8.59	4.44	19.49	5.18	3.38	6.11	0.10	3.41	......	0.03	......	10.23	100.0	27.45	26.14	1.31	7.84	37.26	100.0
SLIGHTLY INJURED:																				
Copper	2,803	720	74	1,582	490	448	473	13	287	7	8	......	591	**7,496**	11	44	4	......	48	**107**
Iron	2,089	787	90	882	117	157	377	9	190	6	4	1	1,551	**6,260**	23	59	......	4	67	**153**
Lead and zinc (Mississippi Valley)	333	33	15	142	41	12	116	4	38	4	1	3	297	**1,039**	6	84	1	2	29	**122**
Gold and miscellaneous metal	771	250	54	286	98	258	234	4	53	7	4	9	661	**2,689**	11	28	......	8	43	**90**
Miscellaneous mineral	46	6	9	32	1	1	7	......	8	......	......	1	47	**158**	......	1	......	......	......	**1**
Total	6,042	1,796	242	2,924	747	876	1,207	30	576	24	17	14	3,147	**17,642**	51	216	5	14	187	**473**
Pr. ct. of grand total slightly injured	26.96	8.02	1.08	13.05	3.33	3.91	5.39	0.13	2.57	0.11	0.08	0.06	14.04	78.73	0.23	0.96	0.02	0.06	0.84	2.11
Pr. ct. of class total slightly injured	34.25	10.18	1.37	16.57	4.23	4.97	6.84	0.17	3.26	0.14	0.10	0.08	17.84	100.0	10.78	45.67	1.06	2.96	39.53	100.0

Mines.	Surface.								Surface (where surface mining is done).													Grand total.
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By boiler explosions.	By electricity (shock or burns).	By machinery.	By other causes.	Total, surface.	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By railway cars or locomotives (not used in mine).	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity (shock or burns).	By boiler explosions.	By other causes.	Total, surface accidents (where surface mining is done).	
	19	20	21	22	23	24	25		26	27	28	29	30	31	32	33	34	35	36	37		
KILLED:																						
Copper	.....	3	1	.....	1	3	14	22	7	5	2	.....	1	.....	.....	.....	2	.....	.....	.....	17	238
Iron	1	2	1	.....	.....	2	4	10	22	10	12	1	.....	1	2	.....	.....	.....	1	2	51	197
Lead and zinc (Mississippi Valley)	.....	3	.....	6	.....	.....	1	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	43
Gold and miscellaneous metal	3	.....	1	.....	1	3	17	25	3	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	5	193
Miscellaneous mineral	.....	.....	.....	.....	.....	.....	.....	0	3	1	4	.....	1	.....	1	.....	1	.....	.....	1	12	24
Total	4	8	3	6	2	8	36	67	35	16	18	1	3	1	3	.....	3	.....	2	4	86	695
Per cent of grand total killed	0.58	1.15	0.43	0.86	0.29	1.15	5.18	9.64	5.04	2.31	2.59	0.14	0.43	0.14	0.43	.....	0.43	.....	0.29	0.58	12.38	100.0
Per cent of class total killed	5.97	11.94	4.47	8.95	2.99	11.94	53.74	100.0	40.70	18.60	20.93	1.16	3.49	1.16	3.49	.....	3.49	.....	2.33	4.65	100.0	.....
SERIOUSLY INJURED:																						
Copper	5	4	8	.....	.....	10	39	66	26	7	10	5	4	3	.....	.....	9	1	.....	2	67	1,326
Iron	32	9	6	1	.....	45	95	188	63	26	95	57	40	3	7	3	21	2	1	95	413	2,032
Lead and zinc (Mississippi Valley)	3	.....	.....	3	.....	16	11	33	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	2	1	5	177
Gold and miscellaneous metal	8	2	2	1	1	20	28	62	2	2	2	2	3	4	.....	1	3	.....	1	5	25	540
Miscellaneous mineral	2	.....	.....	.....	.....	1	4	7	3	6	8	.....	1	.....	1	.....	13	.....	1	7	40	94
Total	50	15	16	5	1	92	177	356	94	41	115	64	50	10	8	4	46	3	5	110	550	4,169
Per cent of grand total seriously injured	1.20	0.36	0.38	0.12	0.02	2.21	4.25	8.54	2.25	0.98	2.76	1.54	1.20	0.24	0.19	0.10	1.10	0.07	0.12	2.64	13.19	100.0
Per cent of class total seriously injured	14.05	4.21	4.49	1.41	0.28	25.84	49.72	100.0	17.09	7.45	20.91	11.64	9.09	1.82	1.45	0.73	8.36	0.55	0.91	20.00	100.0	.....
SLIGHTLY INJURED:																						
Copper	28	12	54	.....	15	67	497	673	199	45	79	40	108	34	.....	.....	162	3	.....	70	740	9,016
Iron	59	20	29	2	1	143	343	597	195	54	236	136	166	31	13	7	86	2	.....	754	1,680	8,690
Lead and zinc (Mississippi Valley)	10	6	9	2	1	37	69	134	2	1	2	.....	.....	2	.....	1	2	.....	.....	6	16	1,311
Gold and miscellaneous metal	35	3	8	.....	5	38	126	215	14	5	8	4	21	2	.....	1	6	3	.....	20	84	3,078
Miscellaneous mineral	3	1	.....	.....	.....	4	9	17	16	4	32	.....	2	.....	7	.....	45	1	.....	30	137	313
Total	135	42	100	4	22	289	1,044	1,636	426	109	357	180	297	69	20	9	301	9	.....	880	2,657	22,408
Per cent of grand total slightly injured	0.60	0.19	0.44	0.02	0.10	1.29	4.66	7.30	1.90	0.49	1.59	0.80	1.33	0.31	0.09	0.04	1.34	0.04	.....	3.93	11.86	100.0
Per cent of class total slightly injured	8.25	2.57	6.11	0.24	1.35	17.67	63.81	100.0	16.03	4.10	13.44	6.77	11.18	2.60	0.75	0.34	11.33	0.34	.....	33.12	100.0	.....

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TABLE 3.—*Comparison of the number of men employed, number of men killed, and rate per 1,000 employed in and about the metal mines and coal mines in the United States in the calendar year 1911.*

States.	Number employed.		Total number killed.		Number killed per 1,000 employed.	
	Metal mines.	Coal mines.[a]	Metal mines.	Coal mines.[a]	Metal mines.	Coal mines.[a]
Alabama	4,101	22,003	10	209	2.44	9.50
Arkansas	584	5,338	2	12	3.42	2.25
Arizona	12,768		70		5.48	
California	10,877	[b] 60	38		3.49	
Connecticut	164					
Colorado	10,404	14,373	43	91	4.13	6.33
Florida	4,305		9		2.09	
Georgia	1,001	510	2		2.00	
Idaho	4,801	9	23		4.79	
Illinois	848	75,656	1	172	1.18	2.27
Indiana	4	20,991		46		2.19
Iowa	244	16,852	1	40	4.10	2.37
Kansas	729	11,823	2	42	2.74	3.55
Kentucky	461	24,124	3	45	6.51	1.87
Maine	81					
Maryland	231	6,079		15		2.47
Massachusetts	118					
Michigan	31,584	3,248	134	7	4.24	2.16
Minnesota	16,548		76		4.59	
Missouri	9,901	9,607	38	8	3.84	.83
Montana	13,346	3,864	62	13	4.65	3.36
Nevada	6,210		50		8.05	
New Hampshire	100					
New Jersey	1,739		23		13.23	
New Mexico	2,450	3,700	11	21	4.49	5.68
New York	3,202		10		3.12	
North Carolina	997		4		4.01	
North Dakota		760		1		1.32
Ohio	362	45,459		109		2.40
Oklahoma	418	8,729		33		3.78
Oregon	1,394	304	2	1	1.43	3.29
Pennsylvania	862	345,048	1	1,239	1.16	3.59
South Carolina	984					
South Dakota	2,519		8		3.18	
Tennessee	4,454	11,124	10	115	2.25	10.34
Texas	248	4,980		8		1.61
Utah	7,710	3,446	49	14	6.36	4.06
Vermont	180					
Virginia	3,971	8,107	6	68	1.51	8.39
Washington	1,569	7,236	3	27	1.91	3.73
West Virginia	54	66,800	1	350	18.52	5.24
Wisconsin	2,844		3		1.05	
Wyoming	612	8,118		33		4.07
Total, average	165,979	728,348	695	2,719	4.19	3.73

[a] Technical Paper No. 27, Bureau of Mines.

[b] Includes Alaska.

TABLE 4.—*Number of men killed and injured in and about the* **copper** *mines in the United States in the calendar year 1911.*

States.	Underground.														Shaft.					
	By fall of rock or ore from roof or wall.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity (shock or burns).	By machinery (other than mine locomotives or machine drills).	By mine fires.	By suffocation from natural gas.	By inrush of water.	By other causes.	**Total, underground.**	By falling down shaft.	By objects falling down shaft.	By breaking of cables.	By overwinding.	By other causes.	**Total, shaft accidents.**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**		**14**	**15**	**16**	**17**	**18**	
KILLED:																				
Arizona	28		3		4			3			1		1	**40**	6	3			4	**13**
California			1											**1**						**0**
Colorado														**0**						**0**
Idaho														**0**						**0**
Michigan	28	3	5	2	1	4		1	3					**47**	9	1			2	**12**
Montana	17	2	3	1	10	2				4				**39**					7	**7**
Nevada			1							7				**8**						**0**
New Mexico					1									**1**		1				**1**
Oregon														**0**						**0**
Utah	6	1	3	2	1			2		1				**16**	1				3	**4**
Washington											1			**1**						**0**
Wyoming														**0**						**0**
Eastern States[a]	3		2		2									**7**	1				1	**2**
Total	82	6	18	5	19	6		6	3	12	2		1	**160**	17	5			17	**39**
SERIOUSLY INJURED:																				
Arizona	124	26	4	45	19		3	1	4				46	**272**	5	5		2	5	**17**
California	2				2									**4**		1				**1**
Colorado														**0**						**0**
Idaho	1						1		1					**3**						**0**
Michigan	236	32	4	193	22	27	75		27				27	**643**	5	4	1		3	**13**
Montana	53	2	3	13	9	8			3				11	**102**		1		1	5	**7**
Nevada														**0**						**0**
New Mexico		1												**1**						**0**
Oregon														**0**		1				**1**
Utah	43	3	7	15	5	3	3		2				7	**88**	1					**1**
Washington														**0**						**0**
Wyoming														**0**						**0**
Eastern States[a]	11	4	4	5	2	3	9							**38**	1				1	**2**
Total	470	68	22	271	59	41	91	1	37				91	**1,151**	12	12	1	3	14	**42**

[a] Includes Maryland, New Jersey, North Carolina, Pennsylvania, Tennessee, Vermont, and Virginia.

TABLE 4.—*Number of men killed and injured in and about the* ***copper*** *mines in the United States in the calendar year 1911*—Continued.

States.	Underground.														Shaft.					
	By fall of rock or ore from roof or wall.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling accidents.	By electricty (shock or burns).	By machinery (other than mine locomotives or machine drills).	By mine fires.	By suffocation from natural gas.	By inrush of water.	By other causes.	**Total, underground.**	By falling down shaft.	By objects falling down shaft.	By breaking of cables.	By overwinding.	By other causes.	**Total, shaft accidents.**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**		**14**	**15**	**16**	**17**	**18**	
SLIGHTLY INJURED:																				
Arizona	971	289	24	220	115	20	81	7	27	7			119	**1,880**	6	14	1		16	37
California	5	1	1	2	1		2	2			8		1	**23**	1	1				2
Colorado	1													**1**						0
Idaho	2				1								1	**4**						0
Michigan	979	297	22	1,146	254	359	331	2	229				317	**3,936**	3	15	3		17	38
Montana	509	49	9	97	90	48		1	3				120	**926**	1	9			8	18
Nevada	5	1			2		1						2	**11**					1	1
New Mexico	1			1										**2**						0
Oregon														**0**						0
Utah	298	52	9	66	20	16	34	1	26				25	**547**					5	5
Washington														**0**						**0**
Wyoming														**0**						0
Eastern States [a]	32	31	9	50	7	5	24		2				6	**166**		5			1	6
Total	2,803	720	74	1,582	490	448	473	13	287	7	8		591	**7,496**	11	44	4		48	107

States.	Surface.								Surface (w here surface mining is done).													
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By boiler explosions.	By electricity (shock or burns).	By machinery.	By other causes.	Total, surface.	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By railway cars or locomotives (not used in mine).	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity (shock or burns).	By boiler explosions.	By other causes.	Total, surface accidents (where surface mining is done).	Grand total.
	19	20	21	22	23	24	25		26	27	28	29	30	31	32	33	34	35	36	37		
KILLED:																						
Arizona		1	1		1	1	2	6									2				2	61
California							1	1													0	2
Colorado								0													0	0
Idaho							a 3	3													0	3
Michigan		1					3	4													0	63
Montana		1				2	1	4													0	50
Nevada								0	1	2	1										4	12
New Mexico								0		2											2	4
Oregon								0													0	0
Utah							3	3	6	1	1		1								9	32
Washington							1	1													0	2
Wyoming								0													0	0
Eastern States b								0													0	9
Total		3	1		1	3	14	22	7	5	2		1				2				17	238
SERIOUSLY INJURED:																						
Arizona	1	1				4	17	23									2	1		1	4	316
California		1						1													0	6
Colorado								0													0	0
Idaho								0													0	3
Michigan		2	8			4	9	23													0	679
Montana						1	10	11													0	120
Nevada								0	8	4	4	4		2							22	22
New Mexico								0		1	3		1	1			5			1	12	13
Oregon								0													0	1
Utah	4					1	2	7	18	2	3	1	3				2				29	125
Washington								0													0	0
Wyoming								0													0	0
Eastern States b							1	1													0	41
Total	5	4	8			10	39	66	26	7	10	5	4	3			9	1		2	67	1,326

a Killed by snow slide.

b Includes Maryland, New Jersey, North Carolina, Pennsylvania, Tennessee, Vermont, and Virginia.

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TABLE 4.—*Number of men killed and injured in and about the* **copper** *mines in the United States in the calendar year 1911*—Continued.

States.	Surface.								Surface (where surface mining is done).													
	By mine cars and mine locomotives. 19	By railway cars and locomotives. 20	By run or fall of ore in or from ore bins. 21	By boiler explosions. 22	By electricity (shock or burns). 23	By machinery. 24	By other causes. 25	**Total, surface.**	By falls or slides of rock or ore. 26	By explosives. 27	By mine cars or locomotives used in mine. 28	By steam shovels. 29	By falls of persons. 30	By falls of derricks, booms, etc. 31	By railway cars or locomotives (not used in mine). 32	By run or fall of ore in or from ore bins. 33	By machinery (other than locomotives or steam shovels). 34	By electricity (shock or burns). 35	By boiler explosions. 36	By other causes. 37	**Total, surface accidents (where surface mining is done).**	**Grand total.**
SLIGHTLY INJURED:																						
Arizona	16	8	5		1	29	205	**264**		1			1				67	3			**72**	**2,253**
California	3	2	1				1	**7**													**0**	**32**
Colorado								**0**													**0**	**1**
Idaho								**0**													**0**	**4**
Michigan	3	2	46		14	28	193	**286**													**0**	**4,260**
Montana						4	95	**99**													**0**	**1,043**
Nevada								**0**	13	9	15	9	11	18			9			3	**87**	**99**
New Mexico								**0**	3	8	10	2	5	2			12			2	**44**	**46**
Oregon							1	**1**													**0**	**1**
Utah	6					6	2	**14**	183	27	54	29	91	14			74			65	**537**	**1,103**
Washington								**0**													**0**	**0**
Wyoming								**0**													**0**	**0**
Eastern States[a]			2					**2**													**0**	**174**
Total	28	12	54		15	67	497	**673**	199	45	79	40	108	34			162	3		70	**740**	**9,016**

[a] Includes Maryland, New Jersey, North Carolina, Pennsylvania, Tennessee, Vermont, and Virginia.

TABLE 5.—*Number of men employed, days worked, and number of men killed and injured per 1,000 employed in and about the* **copper** *mines in the United States in the calendar year 1911.*

States.	Number operators reporting.	Employees.			Days' work done.	Average number of days worked.	Killed.						Seriously injured.						Slightly injured.						Widows.	Orphans.
		Underground.	Surface.	Total.			Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.		
Arizona	109	7,468	2,736	10,204	3,059,860	300	53	7.10	8	2.92	61	5.98	289	38.70	27	9.87	316	30.97	1,917	256.69	336	122.44	2,253	220.80	19	22
California	18	544	188	732	247,649	338	1	1.84	1	5.32	2	2.73	5	9.19	1	5.32	6	8.20	25	45.96	7	37.23	32	43.72	1	2
Colorado	4	7	3	10	1,025	103	0	......	0	......	0	......	0	......	0	......	0	......	1	142.86	0	......	1	100.00	0	0
Idaho	31	243	66	309	71,729	232	0	......	3	45.45	3	9.71	3	12.34	0	......	3	9.71	4	16.46	0	......	4	12.94	3	3
Michigan	30	11,953	4,351	16,304	5,012,196	307	59	4.94	4	0.92	63	3.80	656	54.88	23	5.26	679	41.65	3,974	332.47	286	65.96	4,260	261.28	31	77
Montana	54	8,367	2,174	10,541	3,234,527	307	46	5.49	4	1.84	50	4.74	109	13.03	11	5.06	120	11.39	944	112.82	99	45.54	1,043	9.89	18	41
Nevada	28	165	667	832	279,973	337	8	48.48	4	6.00	12	14.42	0	......	22	32.98	22	26.44	12	72.73	87	130.43	99	11.90	1	0
New Mexico	12	194	531	725	246,532	340	2	10.31	2	3.77	4	5.52	1	5.15	12	22.60	13	17.93	2	10.31	44	82.86	46	63.45	2	9
Oregon	6	38	26	64	17,560	274	0	......	0	......	0	......	1	38.46	0	......	1	15.63	0	......	1	38.46	1	15.63	0	0
Utah	53	1,729	1,979	3,708	1,301,916	351	20	11.57	12	6.06	32	8.63	89	51.47	36	13.14	125	33.71	552	319.26	551	278.42	1,103	297.46	6	17
Washington	30	197	146	343	70,840	207	1	5.08	1	6.85	2	5.83	0	......	0	......	0	......	0	......	0	......	0	......	2	3
Wyoming	12	61	39	100	21,802	218	0	......	0	......	0	......	0	......	0	......	0	......	0	......	0	......	0	......	0	0
Eastern States[b]	9	591	230	821	208,716	254	9	15.23	0	......	9	10.96	40	67.68	1	4.35	41	49.94	172	291.03	2	8.70	174	211.93	8	21
Total	396	31,557	13,136	44,693	13,774,325	308	199	6.31	39	2.97	238	5.33	1,193	37.80	133	10.12	1,326	29.67	7,603	240.93	1,413	107.57	9,016	201.73	91	195

[a] Includes shaft accidents.

[b] Includes Maryland, New Jersey, North Carolina, Pennsylvania, Tennessee, Vermont, and Virginia.

TABLE 6.—*Number of men killed and injured in and about the* **iron** *mines in the United States in the calendar year 1911.*

States.	Underground.														Shaft.					
	By fall of rock or ore from roof or wall.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity (shock or burns).	By machinery (other than mine locomotives or machine drills).	By mine fires.	By suffocation from natural gas.	By inrush of water.	By other causes.	**Total, underground.**	By falling down shaft.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By other causes.	**Total, shaft accidents.**
	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	
KILLED:																				
Alabama	4		1	3										**8**						**0**
Georgia														**0**						**0**
Michigan	25		4		6	2				8	1		1	**47**	12	1	1		2	**16**
Minnesota	12		2	2	3				2				3	**24**	6	1			2	**9**
Missouri														**0**						**0**
New Jersey	1	1			1							12	1	**16**	2	1				**3**
New York			1	1										**2**	2				2	**4**
Pennsylvania	1													**1**						**0**
Tennessee														**0**						**0**
Virginia	1													**1**						**0**
Wisconsin	1													**1**	1					**1**
Other Eastern States [a]			1											**1**						**0**
Western States [b]			2											**2**						**0**
Total	45	1	11	6	10	2			2	8	1	12	5	103	23	3	1		6	33
SERIOUSLY INJURED:																				
Alabama	41	9	7	55	2		7		2				6	**129**						**0**
Georgia														**0**						**0**
Michigan	162	54	17	75	31	24	39		13				63	**478**	7	6		3	9	**25**
Minnesota	212	106	24	124	39	19	18	2	20				89	**653**	6	11		1	8	**26**
Missouri														**0**						**0**
New Jersey	8								1				3	**12**	2				1	**3**
New York	25	1	3	9	2	1	2		1				7	**51**		1			3	**4**
Pennsylvania														**0**						**0**
Tennessee		1		3										**4**						**0**
Virginia	4	1	1	2	1	1								**10**						**0**
Wisconsin	8	5	3	1		1							2	**20**	2				1	**3**
Other Eastern States [a]	1		1	3										**5**						**0**
Western States [b]	6		1											**7**					1	**1**
Total	467	177	57	272	75	46	66	2	37				170	**1,369**	17	18		4	23	**62**

SLIGHTLY INJURED:																				
Alabama	377	97	16	267	9	3	114	......	21	......	......	......	257	**1,161**	......	......	......	......	1	**1**
Georgia	......	......	......	......	......	......	......	......	......	......	......	......	......	**0**	......	......	......	......	......	**0**
Michigan	513	192	15	203	33	93	134	4	36	6	......	......	310	**1,539**	8	33	......	4	19	**64**
Minnesota	1,078	467	51	347	67	54	103	3	128	......	4	1	851	**3,154**	15	23	......	......	25	**63**
Missouri	1	......	......	......	......	......	......	......	......	......	......	......	......	**1**	......	......	......	......	......	**0**
New Jersey	24	......	......	......	1	1	2	......	......	......	......	......	10	**38**	......	......	......	......	......	**0**
New York	32	11	4	30	1	3	12	2	4	......	......	......	69	**168**	......	2	......	......	19	**21**
Pennsylvania	......	......	......	......	......	......	......	......	......	......	......	......	......	**0**	......	......	......	......	......	**0**
Tennessee	11	3	1	11	......	......	......	......	......	......	......	......	12	**38**	......	......	......	......	......	**0**
Virginia	9	4	......	11	1	3	2	......	......	......	......	......	1	**31**	......	......	......	......	......	**0**
Wisconsin	33	13	......	10	4	......	7	......	1	......	......	......	41	**109**	......	......	......	......	3	**3**
Other Eastern States [a]	4	......	......	3	......	......	......	......	......	......	......	......	......	**7**	......	......	......	......	......	**0**
Western States [b]	7	......	3	......	1	......	3	......	......	......	......	......	......	**14**	......	1	......	......	......	**1**
Total	2,089	787	90	882	117	157	377	9	190	6	4	1	1,551	**6,260**	23	59	......	4	67	**153**

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[a] Includes Arkansas, Connecticut, Kentucky, Massachusetts, Maryland, North Carolina, Ohio, and West Virginia.
[b] Includes California, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, and Wyoming.

TABLE 6.—*Number of men killed and injured in and about the* **iron** *mines in the United States in the calendar year 1911*—Continued.

States.	Surface.								Surface (where surface mining is done).													
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By boiler explosions.	By electricity (shock or burns).	By machinery.	By other causes.	Total, surface.	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By railway cars or locomotives (not used in mine).	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels.	By electricity (shock or burns).	By boiler explosions.	By other causes.	Total, surface accidents (where surface mining is done).	Grand total.
	19	20	21	22	23	24	25		26	27	28	29	30	31	32	33	34	35	36	37		
KILLED:																						
Alabama								0	1											1	2	10
Georgia								0											1		1	1
Michigan		2	1			1	2	6													0	69
Minnesota						1	1	2	17	9	12	1		1						1	41	76
Missouri								0	1												1	1
New Jersey							1	1													0	20
New York								0													0	6
Pennsylvania								0													0	1
Tennessee	1							1	1												1	2
Virginia								0	1	1					2						4	5
Wisconsin								0													0	2
Other East'n States [a]								0	1												1	2
Western States [b]								0													0	2
Total	1	2	1			2	4	10	22	10	12	1		1	2				1	2	51	197
SERIOUSLY INJURED:																						
Alabama	6		2			2		10	2	2	6	1		1	1						13	152
Georgia								0	2	1		1						1			5	5
Michigan	20	5	1			19	40	85													0	588
Minnesota	5	1	2	1		20	42	71	54	23	88	53	40	2	5	3	17	1	1	94	381	1 131
Missouri								0									1			1	2	2
New Jersey			1			1	2	4													0	19
New York						2	6	8														63
Pennsylvania								0														0
Tennessee	1							1													0	5
Virginia						1		1	5		1	2					2				10	21
Wisconsin							4	4							1		1				2	29
Other East'n States [a]		3						3													0	8
Western States [b]							1	1													0	9
Total	32	9	6	1		45	95	188	63	26	95	57	40	3	7	3	21	2	1	95	413	2,032

SLIGHTLY INJURED:																						
Alabama	14	3	9			23	20	**69**	7	1	14	9	5	1	1		7			8	**53**	**1,284**
Georgia	2							**2**	3		1		1				2				**7**	**9**
Michigan	15	6	13			52	121	**207**				1			1					1	**3**	**1,313**
Minnesota	24	4	6	2	1	65	179	**281**	176	50	210	125	157	30	7	3	67	2		734	**1,561**	**5,059**
Missouri	1							**1**			2										**2**	**4**
New Jersey						1	5	**6**													**0**	**44**
New York						1	8	**9**													**0**	**198**
Pennsylvania								**0**													**0**	**0**
Tennessee								**0**		2							1				**3**	**41**
Virginia	1	1				1	2	**5**	6	1	9									1	**17**	**53**
Wisconsin	1						8	**9**				1	2		4	4	9				**20**	**141**
Other East'n States [a]		6	1					**7**					1							10	**11**	**25**
Western States [b]	1							**1**	3												**3**	**19**
Total	59	20	29	2	1	143	343	**597**	195	54	236	136	166	31	13	7	86	2	......	754	**1,680**	**8,690**

[a] Includes Arkansas, Connecticut, Kentucky, Massachusetts, Maryland, North Carolina, Ohio, and West Virginia.
[b] Includes California, Colorado, Idaho Montana, New Mexico, Nevada, Utah, and Wyoming.

TABLE 7.—*Number of men employed, days worked, and number of men killed and injured per 1,000 employed in and about the* ***iron*** *mines in the United States in the calendar year 1911.*

States.	Number operators reporting.	Employees.			Days' work done.	Average number of days worked.	Killed.						Seriously injured.						Slightly injured.						Widows.	Orphans.
		Underground.	Surface.	Total.			Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.		
Alabama	17	2,225	1,754	3,979	1,324,357	333	8	3.60	2	1.14	10	2.51	129	57.98	23	13.11	152	38.20	1,162	522.3	122	69.6	1,284	322.7	8	14
Georgia	7	20	448	468	136,800	292	0	......	1	2.23	1	2.14	0	......	5	11.16	5	10.68	0	......	9	20.1	9	19.2	0	0
Michigan	36	10,388	4,572	14,960	4,307,402	288	63	6.06	6	1.31	69	4.61	503	48.42	85	18.59	588	39.30	1,603	154.3	210	45.9	1,813	121.2	42	91
Minnesota	40	7,673	8,875	16,548	4,175,782	252	33	4.30	43	4.85	76	4.59	679	88.49	452	50.93	1,131	68.35	3,217	419.1	1,842	207.6	5,059	305.7	39	80
Missouri	13	55	227	282	41,700	148	0	......	1	4.41	1	3.55	0	......	2	8.81	2	7.09	1	18.2	3	13.2	4	14.2	0	0
New Jersey	6	1,007	286	1,293	367,111	284	19	18.87	1	3.50	20	15.47	15	14.89	4	13.99	19	14.69	38	37.7	6	21.0	44	34.0	16	40
New York	10	1,234	631	1,865	561,836	301	6	4.86	0	......	6	3.22	55	44.57	8	12.68	63	33.78	189	153.2	9	14.3	198	106.2	2	0
Pennsylvania	16	118	432	550	141,297	257	1	8.47	0	......	1	1.33	0	......	0	......	0	......	0	......	0	......	0	......	1	3
Tennessee	11	400	538	938	261,407	279	0	......	2	3.72	2	2.13	4	10.00	1	1.86	5	5.33	38	95.0	3	5.6	41	43.7	1	0
Virginia	15	734	1,763	2,497	693,553	278	1	1.36	4	2.26	5	2.00	10	13.62	11	6.23	21	8.41	31	42.2	22	12.5	53	21.2	1	3
Wisconsin	8	851	306	1,157	315,555	273	2	2.35	0	......	2	1.73	23	27.03	6	19.61	29	25.06	112	131.6	29	94.8	141	121.9	1	2
Other Eastern States[b]	14	330	347	677	192,993	286	1	3.03	1	2.88	2	2.96	5	15.15	3	8.64	8	11.82	7	21.2	18	51.9	25	36.9	2	4
Western States[c]	14	426	313	739	229,328	310	2	4.70	0	......	2	2.71	8	18.80	1	3.19	9	12.17	15	3.5	4	12.8	19	25.7	1	0
Total	207	25,461	20,492	45,953	12,749,121	277	136	5.34	61	2.95	197	4.29	1,431	56.20	601	29.33	2,032	44.22	6,413	251.9	2,277	111.1	8,690	188.3	114	237

[a] Includes shaft accidents.

[b] Includes Arkansas, Connecticut, Kentucky, Massachusetts, Maryland, North Carolina, Ohio, and West Virginia.

[c] Includes California, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, and Wyoming.

TABLE 8.—*Number of men killed and injured in and about the* **lead** *and* **zinc** *mines (Mississippi Valley) in the United States in the calendar year 1911.*

States.	Underground.														Shaft.					
	By fall of rock or ore from roof or wall.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity (shock or burns).	By machinery (other than mine locomotives or machine drills).	By mine fires.	By suffocation from natural gas.	By inrush of water.	By other causes.	**Total, underground.**	By falling down shaft.	By objects falling down shaft.	By breaking of cables.	By overwinding.	By other causes.	**Total, shaft accidents.**
	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	
KILLED:																				
Arkansas	2													**2**						**0**
Illinois			1											**1**						**0**
Iowa														**0**						**0**
Kansas	1												1	**2**						**0**
Kentucky														**0**						**0**
Missouri	14	1	2	2				2					1	**22**	1	2			1	**4**
Oklahoma														**0**						**0**
Wisconsin	1													**1**						**0**
Total	18	1	3	2				2					2	**28**	1	2			1	**4**
SERIOUSLY INJURED:																				
Arkansas														**0**						**0**
Illinois	1								1				2	**4**	1					**1**
Iowa														**0**						**0**
Kansas	4			1			1							**6**						**0**
Kentucky									1				1	**2**						**0**
Missouri	43	2	19	13	3		4		8				8	**100**	4	4	1		5	**14**
Oklahoma		1												**1**						**0**
Wisconsin	5			1	1				1		1		1	**11**						**0**
Total	53	3	19	15	4		5		11		1		13	**124**	5	4	1		5	**15**
SLIGHTLY INJURED:																				
Arkansas	4	1					1							**6**						**0**
Illinois	5	3					6						4	**18**						**0**
Iowa														**0**						**0**
Kansas	22	1		1		3	9		4				10	**50**						**0**
Kentucky		1											1	**2**						**0**
Missouri	252	24	15	134	34	4	95	3	34	2			276	**873**	5	82	1	1	24	**113**
Oklahoma	1													**1**					1	**1**
Wisconsin	49	3		7	7	5	5	1		2	1	3	6	**89**	1	2		1	4	**8**
Total	333	33	15	142	41	12	116	4	38	4	1	3	297	**1,039**	6	84	1	2	29	**122**

TABLE 8.—*Number of men killed and injured in and about the* ***lead*** *and* ***zinc*** *mines (Mississippi Valley), etc.*—Continued.

States.	Surface.								Surface (where surface mining is done).													
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By boiler explosions.	By electricity (shock or burns).	By machinery.	By other causes.	**Total, surface.**	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By railway cars or locomotives (not used in mine).	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity (shock or burns).	By boiler explosions.	By other causes.	**Total, surface accidents (where surface mining is done).**	**Grand total.**
	19	20	21	22	23	24	25		26	27	28	29	30	31	32	33	34	35	36	37		
KILLED:																						
Arkansas								**0**													**0**	**2**
Illinois								**0**													**0**	**1**
Iowa								**0**													**0**	**0**
Kansas								**0**													**0**	**2**
Kentucky								**0**													**0**	**0**
Missouri		3		6			1	**10**											1		**1**	**37**
Oklahoma								**0**													**0**	**0**
Wisconsin								**0**													**0**	**1**
Total		3		6			1	**10**											1		**1**	**43**
SERIOUSLY INJURED:																						
Arkansas							1	**1**													**0**	**1**
Illinois							1	**1**													**0**	**6**
Iowa								**0**													**0**	**0**
Kansas							2	**2**					1								**1**	**9**
Kentucky								**0**													**0**	**2**
Missouri	2			3		9	5	**19**					1						2	1	**4**	**137**
Oklahoma								**0**													**0**	**1**
Wisconsin	1					7	2	**10**													**0**	**21**
Total	3			3		16	11	**33**					2						2	1	**5**	**177**
SLIGHTLY INJURED:																						
Arkansas							1	**1**								1					**1**	**8**
Illinois								**0**													**0**	**18**
Iowa								**0**													**0**	**0**
Kansas	3					1	9	**13**													**0**	**63**
Kentucky								**0**													**0**	**2**
Missouri	6	4	4	1		22	56	**93**	2	1	2			2			2			5	**14**	**1,093**
Oklahoma								**0**													**0**	**2**
Wisconsin	1	2	5	1	1	14	3	**27**												1	**1**	**125**
Total	10	6	9	2	1	37	69	**134**	2	1	2			2		1	2			6	**16**	**1,311**

TABLE 9.—*Number of men employed, days worked, and number of men killed and injured per 1,000 employed in and about the* **lead** *and* **zinc** *mines (Mississippi Valley) in the United States in the calendar year 1911.*

States.	Number operators reporting.	Employees.			Days' work done.	Average number of days worked.	Killed.						Seriously injured.						Slightly injured.						Widows.	Orphans.
		Underground.	Surface.	Total.			Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.		
Arkansas	16	122	71	193	39,782	206	2	16.39	0	......	2	10.36	0	......	1	14.08	1	5.18	6	49.18	2	28.17	8	41.45	2	6
Illinois	11	287	210	497	137,543	277	1	3.48	0	......	1	2.01	5	17.42	1	4.76	6	12.07	18	62.72	0	......	18	36.22	0	0
Iowa	8	15	7	22	5,850	266	0	......	0	......	0	......	0	......	0	......	0	......	0	......	0	......	0	......	0	0
Kansas	42	465	204	669	145,013	217	2	4.30	0	......	2	2.99	6	12.90	3	14.71	9	13.45	50	107.53	13	63.73	63	94.17	2	1
Kentucky	5	29	25	54	15,100	280	0	......	0	......	0	......	2	68.97	0	......	2	37.04	2	68.97	0	......	2	37.04	0	0
Missouri	311	7,197	2,299	9,496	2,448,766	258	26	3.61	11	4.78	37	3.90	114	15.84	23	10.00	137	14.43	986	137.00	107	46.54	1,093	115.10	22	33
Oklahoma	24	226	103	329	67,959	207	0	......	0	......	0	......	1	4.42	0	......	1	3.04	2	8.85	0	......	2	6.08	0	0
Wisconsin	66	906	355	1,261	342,326	271	1	1.10	0	......	1	.79	11	12.14	10	28.17	21	16.65	97	107.06	28	78.87	125	99.13	0	0
Total	483	9,247	3,274	12,521	3,202,339	256	32	3.46	11	3.36	43	3.43	139	15.03	38	11.61	177	14.14	1,161	125.55	150	45.82	1,311	104.70	26	40

[a] Includes shaft accidents.

TABLE 10.—*Number of men killed in and about the* ***gold*** *and* ***miscellaneous metal*** *mines in the United States in the calendar year 1911.*

States.	Underground.														Shaft.					
	By fall of rock or ore from roof or wall.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling accidents.	By electricity (shock or burns).	By machinery (other than mine locomotives or machine drills).	By mine fires.	By suffocation from natural gas.	By inrush of water.	By other causes.	**Total, underground.**	By falling down shaft.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By other causes.	**Total, shaft.**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**		**14**	**15**	**16**	**17**	**18**	
Alabama														**0**						**0**
Arizona	1				2									**3**	1	3				**4**
California	8		5	1	1	2			2					**19**	4	4	3			**11**
Colorado	13		1	1	6	4		2			5			**32**	4					**4**
Georgia														**0**						**0**
Idaho	4		2	1	2			4	2					**15**						**0**
Montana	3		6											**9**	1					**1**
Nevada	4	1	4	2	3					17				**31**	3				1	**4**
New Mexico			1		2									**3**						**0**
North Carolina														**0**					1	**1**
Oregon	1								1					**2**						**0**
South Dakota	3	1	1		2			1						**8**						**0**
Tennessee														**0**						**0**
Texas														**0**						**0**
Utah	1		4	2									2	**9**	3	1			1	**5**
Virginia														**0**						**0**
Washington														**0**						**0**
Wyoming														**0**						**0**
Other States[a]	2													**2**						**0**
Total	40	2	24	7	18	6		7	5	17	5		2	**133**	16	8	3		3	**30**

States.	Surface.								Surface (where surface mining is done).													
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By boiler explosions.	By electricity (shock or burns).	By machinery.	By other causes.	**Total, surface.**	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By railway cars or locomotives (not used in mine).	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity (shock or burns).	By boiler explosions.	By other causes.	**Total, accidents (where surface mining is performed).**	**Grand total.**
	19	**20**	**21**	**22**	**23**	**24**	**25**		**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**		
Alabama								**0**													**0**	**0**
Arizona							1	**1**													**0**	**8**
California			1				3	**4**	2												**2**	**36**
Colorado	1				1	3	2	**7**													**0**	**43**
Georgia								**0**													**0**	**0**
Idaho							*b* 5	**5**													**0**	**20**
Montana	1							**1**												1	**1**	**12**
Nevada							2	**2**													**0**	**37**
New Mexico							1	**1**													**0**	**4**
North Carolina								**0**	1												**1**	**2**
Oregon								**0**													**0**	**2**
South Dakota								**0**													**0**	**8**
Tennessee								**0**													**0**	**0**
Texas								**0**													**0**	**0**
Utah	1						2	**3**													**0**	**17**
Virginia								**0**													**0**	**0**
Washington							1	**1**													**0**	**1**
Wyoming								**0**													**0**	**0**
Other States *a*								**0**					1								**1**	**3**
Total	3		1		1	3	17	**25**	3				1							1	**5**	**193**

a Includes Arkansas, Maryland, Massachusetts, New Jersey, New York, South Carolina, and Wisconsin.

b Killed by snowslides.

TABLE 11.—*Number of men seriously and slightly injured in and about the* ***gold*** *and* ***miscellaneous metal*** *mines in the United States in the calendar year 1911.*

States.	Underground.														Shaft.					
	By fall of rock or ore from roof or wall. 1	By timber or hand tools. 2	By explosives. 3	By haulage accidents. 4	By falling down chute, winze, raise, or stope. 5	By run of ore from chute or pocket. 6	By drilling accidents. 7	By electricity (shock or burns). 8	By machinery (other than mine locomotives or machine drills). 9	By mine fires. 10	By suffocation from natural gas. 11	By inrush of water. 12	By other causes. 13	**Total, underground.**	By falling down shaft. 14	By objects falling down shaft. 15	By breaking of cables. 16	By overwinding. 17	By other causes. 18	**Total, shaft.**
SERIOUSLY INJURED:																				
Alabama														**0**						**0**
Arizona	4		2		1		1						1	**9**	1			1	1	**3**
California	36	8	1	4	2		6		6				12	**75**	1	1			7	**9**
Colorado	80	1	6	7	6		1		3				6	**110**	2				3	**5**
Georgia	1		1											**2**						**0**
Idaho	15	5	2	3	2	1			2				4	**34**						**0**
Montana	2	1	2		2				2				1	**10**	1					**1**
Nevada	19		6	3	2	1	6		2					**39**	1	5			1	**7**
New Mexico			7		1		1							**9**	1					**1**
North Carolina		1												**1**						**0**
Oregon	1					1							1	**3**						**0**
South Dakota	9	1	3	6		10							4	**33**						**0**
Tennessee														**0**						**0**
Texas														**0**						**0**
Utah	35	1	2	13	5		4		2				3	**65**				4	3	**7**
Virginia	1			2			1							**4**						**0**
Washington	2		2				1							**5**						**0**
Wyoming														**0**						**0**
Other States [a]	2	1	2	2		4	3		1				6	**21**						**0**
Total	207	19	36	40	21	17	24		18				38	**420**	7	6		5	15	**33**

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SLIGHTLY INJURED:																			
Alabama													**0**						**0**
Arizona	24	1	3	4	5	1	3	1	1				1	**44**	2	4		1	3	**10**
California	111	24	10	19	5	10	15		7			7	62	**270**	2	2			5	**9**
Colorado	195	34	13	35	26	8	31	1	27		4		122	**496**	2	13			6	**21**
Georgia													**0**						**0**
Idaho	201	43	3	54	23	7	72		3				131	**537**				2	8	**10**
Montana	13	3	2	2	2	2	2			1				**27**	1				1	**2**
Nevada	51	14	5	18	14	5	19	1	4	6		2	23	**162**		2		1	8	**11**
New Mexico	7	1			2									**10**		1			2	**3**
North Carolina		2		1									1	**4**						**0**
Oregon	2	3					1		1				1	**8**		1			1	**2**
South Dakota	64	19	9	75	13	134	37						270	**621**		3		1	1	**5**
Tennessee	4			2										**6**	2	1			1	**4**
Texas													**0**						**0**
Utah	49	6	1	19	6	5	7		4				19	**116**		1		3	3	**7**
Virginia	8	1				2	1		2					**14**						**0**
Washington	7	2	1				1							**11**						**0**
Wyoming							1						2	**3**						**0**
Other States *a*	35	97	7	57	2	84	44	1	4				9	**360**	2				4	**6**
Total	771	250	54	286	98	258	234	4	53	7	4	9	661	**2,689**	11	28		8	43	**90**

a Includes Arkansas, Maryland, Massachusetts, New Jersey, New York, South Carolina, and Wisconsin.

TABLE 11.—*Number of men seriously and slightly injured in and about the* ***gold*** *and* ***miscellaneous metal*** *mines in the United States in the calendar year 1911*—Continued.

States.	Surface.								Surface (where surface mining is done).													
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By boiler explosions.	By electricity (shock or burns).	By machinery.	By other causes.	**Total, surface.**	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By railway cars or locomotives (not used in mine).	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity (shock or burns).	By boiler explosions.	By other causes.	**Total, accidents (where surface mining is done).**	**Grand total.**
	19	**20**	**21**	**22**	**23**	**24**	**25**		**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**		
SERIOUSLY INJURED:																						
Alabama								**0**												1	**1**	**1**
Arizona	1					2	3	**6**													**0**	**18**
California	1	1	1	1		9	10	**23**	1				1	4			1		1	2	**10**	**117**
Colorado	2		1		1	3	6	**13**													**0**	**128**
Georgia								**0**		2											**2**	**4**
Idaho							3	**3**								1	1			1	**3**	**40**
Montana	1					1		**2**			1		2				1				**4**	**17**
Nevada		1				2		**3**													**0**	**49**
New Mexico						1	2	**3**													**0**	**13**
North Carolina								**0**													**0**	**1**
Oregon								**0**													**0**	**3**
South Dakota	3						2	**5**													**0**	**38**
Tennessee								**0**	1												**1**	**1**
Texas								**0**													**0**	**0**
Utah						1		**1**			1	2									**3**	**76**
Virginia								**0**													**0**	**4**
Washington								**0**												1	**1**	**6**
Wyoming								**0**													**0**	**0**
Other States *a*						1	2	**3**													**0**	**24**
Total	8	2	2	1	1	20	28	**62**	2	2	2	2	3	4		1	3		1	5	**25**	**540**

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SLIGHTLY INJURED:																					
Alabama								**0**													**0**	**0**
Arizona	1				1	3		**5**	1									1			**2**	**61**
California	3				1	8	18	**30**	3	4	3	2	20	2			6	1		19	**60**	**369**
Colorado	11	1	2		2	16	50	**82**	3		1										**4**	**603**
Georgia						1	2	**3**	1												**1**	**4**
Idaho	3	1			1	4	14	**23**					1								**1**	**571**
Montana			1				1	**2**													**1**	**32**
Nevada	5		1			2	6	**14**	2		1										**3**	**190**
New Mexico	1							**1**													**0**	**14**
North Carolina								**0**													**0**	**4**
Oregon						3		**3**								1					**1**	**14**
South Dakota	5						32	**37**			1										**1**	**664**
Tennessee								**0**				1									**1**	**11**
Texas								**0**													**0**	**0**
Utah	5					1	2	**8**	1		2	1						1			**5**	**136**
Virginia								**0**	1												**1**	**15**
Washington							1	**1**	1											1	**2**	**14**
Wyoming								**0**	1												**1**	**4**
Other States [a]	1	1	4					**6**													**0**	**372**
Total	35	3	8	....	5	38	126	**215**	14	5	8	4	21	2	.....	1	6	3	....	20	**84**	**3,078**

[a] Includes Arkansas, Maryland, Massachusetts, New Jersey, New York, South Carolina, and Wisconsin.

TABLE 12.—*Number of men employed, days worked, and the number of men killed and injured per 1,000 employed in and about the* ***gold*** *and* ***miscellaneous metal*** *mines in the United States in the calendar year 1911.*

States.	Number of operators reporting.	Employees.			Days' work done.	Average number of days worked.	Killed.						Seriously injured.						Slightly injured.						Widows.	Orphans.
		Underground.	Surface.	Total.			Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	Underground.[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.		
Alabama	5	19	44	63	9,967	158	0	......	0	......	0	......	0	......	1	22.73	1	15.87	0	......	0	......	0	......	0	0
Arizona	238	1,695	811	2,506	618,969	247	7	4.13	1	1.23	8	3.19	12	7.08	6	7.40	18	7.18	54	31.86	7	8.63	61	24.34	1	0
California	821	6,511	3,491	10,002	2,785,747	278	30	4.61	6	1.72	36	3.60	84	12.90	33	9.45	117	11.70	279	42.85	90	25.78	369	36.89	7	13
Colorado	647	8,178	2,096	10,274	3,124,460	304	36	4.40	7	3.34	43	4.19	115	14.06	13	6.20	128	12.46	517	63.22	86	41.03	603	58.69	14	24
Georgia	15	65	298	363	65,532	181	0	......	0	......	0	......	2	30.77	2	6.71	4	11.02	0	......	4	13.42	4	11.02	0	0
Idaho	477	3,328	1,120	4,448	1,163,160	262	15	4.51	[b] 5	4.46	20	4.50	34	10.22	6	5.36	40	8.99	547	164.36	24	21.43	571	128.37	3	9
Montana	276	1,920	828	2,748	767,875	279	10	5.21	2	2.42	12	4.37	11	5.73	6	7.25	17	6.19	29	15.10	3	3.62	32	11.64	5	5
Nevada	440	4,070	1,186	5,256	1,513,907	288	35	8.60	2	1.69	37	7.04	46	11.30	3	2.53	49	9.32	173	42.51	17	14.33	190	36.15	13	19
New Mexico	114	1,091	410	1,501	439,528	293	3	2.75	1	2.44	4	2.66	10	9.17	3	7.32	13	8.66	13	11.92	1	2.44	14	9.33	2	3
North Carolina	15	195	117	312	52,915	170	1	5.13	1	8.55	2	6.41	1	5.13	0	......	1	3.21	4	20.51	0	......	4	12.82	2	5
Oregon	204	774	556	1,330	314,489	236	2	2.58	0	......	2	1.50	3	3.88	0	......	3	2.26	10	12.92	4	7.19	14	10.53	1	4
South Dakota	54	1,919	551	2,470	588,277	238	8	4.17	0	......	8	3.24	33	17.20	5	9.07	38	15.38	626	326.21	38	68.97	664	268.83	5	17
Tennessee	4	47	100	147	37,370	254	0	......	0	......	0	......	0	......	1	10.00	1	68.03	10	212.77	1	10.00	11	74.83	0	0
Texas	7	180	51	231	69,970	303	0	......	0	......	0	......	0	......	0	......	0	......	0	......	0	......	0	......	0	0
Utah	228	3,115	656	3,771	1,116,540	296	14	4.49	3	4.57	17	4.51	72	23.11	4	6.10	76	20.15	123	39.49	13	19.82	136	36.06	8	19
Virginia	17	547	428	975	283,847	291	0	......	0	......	0	......	4	7.31	0	......	4	4.10	14	25.59	1	2.34	15	15.38	0	0
Washington	207	838	386	1,224	244,142	199	0	......	1	2.59	1	0.82	5	5.97	1	2.59	6	4.90	11	13.13	3	7.77	14	11.44	0	0
Wyoming	38	107	77	184	42,513	231	0	......	0	......	0	......	0	......	0	......	0	......	3	28.04	1	12.99	4	21.74	0	0
Other States [c]	10	577	537	1,114	273,425	245	2	3.47	1	1.86	3	2.69	21	36.39	3	5.59	24	21.54	366	634.31	6	11.17	372	333.93	0	0
Total	3,817	35,176	13,743	48,919	13,512,633	276	163	4.63	30	2.18	193	3.95	453	12.88	87	6.33	540	11.04	2,779	79.00	299	21.76	3,078	62.92	61	118

[a] Includes shaft accidents.

[b] Killed by snowslides.

[c] Includes Arkansas, Maryland, Massachusetts, New Jersey, New York, South Carolina, and Wisconsin.

TABLE 13.—*Number of men killed in and about the* **miscellaneous mineral** *mines in the United States in the calendar year 1911.*

States.	Underground.			Surface (where surface mining is done).								
	By fall of rock or ore from roof or wall.	By explosives.	**Total, underground.**	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By falls of persons.	By railway cars or locomotives (not used in mine).	By machinery (other than locomotives or steam shovels).	By other causes.	**Total, surface accidents (where surface mining is done).**	**Grand total.**
	1	**3**		**26**	**27**	**28**	**30**	**32**	**34**	**37**		
Alabama			**0**								**0**	**0**
Arizona		1	**1**								**0**	**1**
California			**0**								**0**	**0**
Colorado			**0**								**0**	**0**
Connecticut			**0**								**0**	**0**
Florida			**0**	1		4	1	1	1	1	**9**	**9**
Georgia			**0**	1							**1**	**1**
Idaho			**0**								**0**	**0**
Illinois			**0**								**0**	**0**
Iowa		1	**1**								**0**	**1**
Kansas			**0**								**0**	**0**
Kentucky	3		**3**								**0**	**3**
Maine			**0**								**0**	**0**
Maryland			**0**								**0**	**0**
Massachusetts			**0**								**0**	**0**
Michigan		2	**2**								**0**	**2**
Missouri			**0**								**0**	**0**
Nevada			**0**	1							**1**	**1**
New Hampshire			**0**								**0**	**0**
New Jersey			**0**								**0**	**0**
New Mexico			**0**		1						**1**	**1**
New York	2	2	**4**								**0**	**4**
North Carolina			**0**								**0**	**0**
Ohio			**0**								**0**	**0**
Oklahoma			**0**								**0**	**0**
Pennsylvania			**0**								**0**	**0**
South Carolina			**0**								**0**	**0**
South Dakota			**0**								**0**	**0**
Tennessee			**0**								**0**	**0**
Utah			**0**								**0**	**0**
Vermont			**0**								**0**	**0**
Virginia	1		**1**								**0**	**1**
Wisconsin			**0**								**0**	**0**
Other States[a]			**0**								**0**	**0**
Total	6	6	**12**	3	1	4	1	1	1	1	**12**	**24**

[a] Includes Arkansas, Indiana, Montana, Texas, Washington, and Wyoming.

TABLE 14.—*Number of men seriously injured in and about the* ***miscellaneous mineral*** *mines in the United States in the calendar year 1911.*

States.	Underground.									Shaft.		Surface.				Surface (where surface mining is done).									
	By fall of rock or ore from roof or wall.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling accidents.	By machinery (other than mine locomotives or machine drills).	By other causes.	**Total, underground.**	By falling down shaft.	**Total, shaft.**	By mine cars and mine locomotives.	By machinery.	By other causes.	**Total, surface.**	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By falls of persons.	By railway cars or locomotives (not used in mine).	By machinery (other than locomotives or steam shovels).	By boiler explosions.	By other causes.	Total, surface accidents (where surface mining is done).	Grand total.
	1	3	4	5	6	7	9	13		14		19	24	25		26	27	28	30	32	34	36	37		
Alabama									0		0				0									0	0
Arizona		1						1	2		0				0									0	2
California									0		0				0									0	0
Colorado									0		0				0									0	0
Connecticut									0		0				0									0	0
Florida									0		0				0	2	5	8	1	1	9	1	7	34	34
Georgia									0		0				0									0	0
Idaho									0		0				0									0	0
Illinois									0	1	1				0									0	1
Iowa	2		2						4		0				0									0	4
Kansas									0		0				0									0	0
Kentucky					1		1	1	3		0				0									0	3
Maine									0		0				0									0	0
Maryland			2						2		0				0									0	2
Massachusetts									0		0				0									0	0
Michigan	1								1		0				0									0	1
Missouri				1					1		0				0									0	1
Nevada									0		0				0									0	0
New Hampshire									0		0				0									0	0
New Jersey		1							1		0				0									0	1
New Mexico									0		0				0									0	0
New York	2	2	1			4		1	10		0	1			1									0	11
North Carolina	3								3		0				0									0	3
Ohio	3		3				1	1	8		0		1		1									0	9
Oklahoma									0		0				0		1							1	1
Pennsylvania									0		0				0									0	0
South Carolina									0		0				0									0	0
South Dakota	1								1		0				0									0	1
Tennessee								1	1		0				0	1					4			5	6
Utah		1		1					2		0	1			1									0	3
Vermont									0		0				0									0	0
Virginia	4						1	1	6		0			2	2									0	8
Wisconsin	1								1		0			2	2									0	3
Other States [a]									0		0				0									0	0
Total	17	5	8	2	1	4	3	6	46	1	1	2	1	4	7	3	6	8	1	1	13	1	7	40	94

[a] Includes Arkansas, Indiana, Montana, Texas, Washington, and Wyoming.

TABLE 15.—*Number of men slightly injured in and about the* ***miscellaneous mineral*** *mines in the United States in the calendar year 1911.*

States.	Underground.											Shaft.	
	By falls of rock or ore from roof or wall. 1	By timber or hand tools. 2	By explosives. 3	By haulage accidents. 4	By falling down chute, winze, raise or stope. 5	By run of ore from chute or pocket. 6	By drilling accidents. 7	By machinery (other than mine locomotives or machine drills). 9	By inrush of water. 12	By other causes. 13	**Total, underground.**	By objects falling down shaft. 15	**Total, shaft.**
Alabama											**0**		**0**
Arizona											**0**		**0**
California											**0**		**0**
Colorado											**0**		**0**
Connecticut			1								**1**		**0**
Florida											**0**		**0**
Georgia											**0**		**0**
Idaho											**0**		**0**
Illinois	2										**2**		**0**
Iowa	10			1						3	**14**		**0**
Kansas	1			2						3	**6**		**0**
Kentucky											**0**		**0**
Maine											**0**		**0**
Maryland	1			1				2			**4**		**0**
Massachusetts											**0**		**0**
Michigan	10									1	**11**		**0**
Missouri	3										**3**		**0**
Nevada											**0**		**0**
New Hampshire	1										**1**		**0**
New Jersey											**0**		**0**
New Mexico											**0**		**0**
New York	2	2	1	17			4			17	**43**	1	**1**
North Carolina	2		1								**3**		**0**
Ohio	4	4	4	6	1		3		1	8	**31**		**0**
Oklahoma				3							**3**		**0**
Pennsylvania											**0**		**0**
South Carolina											**0**		**0**
South Dakota				1							**1**		**0**
Tennessee											**0**		**0**
Utah	2							1			**3**		**0**
Vermont			1								**1**		**0**
Virginia	3		1	1		1		5		13	**24**		**0**
Wisconsin	5									1	**6**		**0**
Other States[a]										1	**1**		**0**
Total	46	6	9	32	1	1	7	8	1	47	**158**	1	**1**

[a] Includes Arkansas, Indiana, Montana, Texas, Washington, and Wyoming.

TABLE 15.—*Number of men slightly injured in and about the* ***miscellaneous mineral*** *mines in the United States in the calendar year 1911*—Con.

States.	Surface.					Surface (where surface mining is done).									
	By mine cars and mine locomotives.	By railway cars and locomotives.	By machinery.	By other causes.	Total, surface.	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By falls of persons.	By railway cars or locomotives (not used in mine).	By machinery (other than locomotives or steam shovels).	By electricity (shock or burns).	By other causes.	Total, surface accidents (where surface mining is done).	Grand total.
	19	20	24	25		26	27	28	30	32	34	35	37		
Alabama					0									0	0
Arizona					0									0	0
California					0									0	0
Colorado					0									0	0
Connecticut					0									0	1
Florida					0	14	3	27	1	7	43	1	28	124	124
Georgia					0									0	0
Idaho					0									0	0
Illinois					0									0	2
Iowa				4	4									0	18
Kansas					0									0	6
Kentucky					0									0	0
Maine					0									0	0
Maryland					0									0	4
Massachusetts					0									0	0
Michigan					0									0	11
Missouri					0									0	3
Nevada					0									0	0
New Hampshire					0									0	1
New Jersey					0									0	0
New Mexico					0									0	0
New York	2	1		3	6			1	1				1	3	53
North Carolina					0									0	3
Ohio				1	1									0	32
Oklahoma					0									0	3
Pennsylvania					0									0	0
South Carolina					0	1								1	1
South Dakota					0									0	1
Tennessee					0		1	4			2		1	8	8
Utah			2		2									0	5
Vermont					0									0	1
Virginia			1	1	2									0	26
Wisconsin	1		1		2									0	8
Other States *a*					0	1								1	2
Total	3	1	4	9	17	16	4	32	2	7	45	1	30	137	313

a Includes Arkansas, Indiana, Montana, Texas, Washington, and Wyoming.

TABLE 16.—*Number of men employed, days worked, and the number of men killed and injured per 1,000 employed in and about the* **miscellaneous mineral** *mines in the United States in the calendar year 1911.*

States.	Number of operators reporting.	Employees.			Days' work performed.	Average number of days worked.	Killed.		Seriously injured.		Slightly injured.		Widows.	Orphans.
		Underground.	Surface.	Total.			Total.	Per 1,000 employed.	Total.	Per 1,000 employed.	Total.	Per 1,000 employed.		
Alabama	3	6	53	59	16,620	282	0	....	0	....	0	....	0	0
Arizona	5	8	50	58	7,650	132	1	17.24	2	34.48	0	....	0	0
California	15	10	126	136	26,347	194	0	....	0	....	0	....	0	0
Colorado	8	17	58	75	10,426	139	0	....	0	....	0	....	0	0
Connecticut	5	0	82	82	21,044	257	0	....	0	....	1	12.20	0	0
Florida	21	0	4,305	4,305	1,283,315	298	9	2.09	34	7.90	124	28.80	1	0
Georgia	11	77	93	170	38,910	229	1	5.88	0	....	0	....	1	0
Idaho	3	0	27	27	2,680	99	0	....	0	....	0	....	0	0
Illinois	4	181	170	351	96,420	275	0	....	1	2.85	2	5.70	0	0
Iowa	6	192	30	222	64,700	291	1	4.50	4	18.02	18	81.08	1	2
Kansas	3	22	38	60	16,200	270	0	....	0	....	6	100.00	0	0
Kentucky	14	135	72	207	46,430	224	3	14.49	3	14.49	0	....	0	0
Maine	4	2	79	81	18,920	234	0	....	0	....	0	....	0	0
Maryland	15	6	136	142	26,672	188	0	....	2	14.08	4	28.17	0	0
Massachusetts	4	15	29	44	10,094	229	0	....	0	....	0	....	0	0
Michigan	8	129	191	320	65,926	206	2	6.25	1	3.13	11	34.38	1	6
Missouri	13	36	87	123	17,879	145	0	....	1	8.13	3	24.39	0	0
Nevada	3	0	54	54	14,760	273	1	18.52	0	....	0	....	0	0
New Hampshire	5	63	37	100	25,524	255	0	....	0	....	1	10.00	0	0
New Jersey	6	11	101	112	11,186	100	0	....	1	8.93	0	....	0	0
New Mexico	6	25	26	51	10,835	212	1	19.61	0	....	0	....	0	0
New York	20	938	220	1,158	313,058	270	4	3.45	11	9.50	53	45.77	1	2
North Carolina	40	344	180	524	68,235	130	0	....	3	5.73	3	5.73	0	0
Ohio	3	268	11	279	81,960	278	0	....	9	32.26	32	114.70	0	0
Oklahoma	8	12	77	89	14,661	165	0	....	1	11.24	3	33.71	0	0
Pennsylvania	21	115	187	302	69,779	231	0	....	0	....	0	....	0	0
South Carolina	4	3	970	973	291,600	300	0	....	0	....	1	1.03	0	0
South Dakota	4	18	31	49	6,985	143	0	....	1	20.41	1	20.41	0	0
Tennessee	23	4	2,607	2,611	665,240	255	0	....	6	2.30	8	3.06	0	0
Utah	9	17	130	147	39,621	270	0	....	3	20.41	5	34.01	0	0
Vermont	9	38	141	179	42,274	236	0	....	0	....	1	5.59	0	0
Virginia	15	318	174	492	77,496	158	1	2.03	8	16.26	26	52.85	0	0
Wisconsin	3	147	78	225	66,138	294	0	....	3	13.33	8	35.56	0	0
Other States [a]	8	25	61	86	18,570	216	0	....	0	....	2	23.27	0	0
Total	329	3,182	10,711	13,893	3,588,155	258	24	1.73	94	6.77	313	22.53	5	10

[a] Includes Arkansas, Indiana, Montana, Texas, Washington, and Wyoming.

TABLE 17.—*Number of men killed, seriously injured, and slightly injured in and about all* **metal** *and* **miscellaneous mineral** *mines in the United States (by States) in the calendar year 1911.*

States.	Underground.														Shaft.					
	By fall of rock or ore from roof or wall.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling machines.	By electricity (shock or burns).	By machinery (other than mine locomotives or machine drills).	By mine fires.	By suffocation from natural gas.	By inrush of water.	By other causes.	**Total, underground.**	By falling down shaft.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By other causes.	**Total, shaft accidents.**
	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	
KILLED:																				
Alabama	4		1	3										**8**						**0**
Arizona	29		4		6			3			1		1	**44**	7	6			4	**17**
Arkansas	2													**2**						**0**
California	8		6	1	1	2			2					**20**	4	4	3			**11**
Colorado	13		1	1	6	4		2			5			**32**	4					**4**
Connecticut														**0**						**0**
Florida														**0**						**0**
Georgia														**0**						**0**
Idaho	4		2	1	2			4	2					**15**						**0**
Illinois			1											**1**						**0**
Indiana and West Virginia														**0**						**0**
Iowa			1											**1**						**0**
Kansas	1												1	**2**						**0**
Kentucky	3													**3**						**0**
Maine														**0**						**0**
Maryland														**0**						**0**
Massachusetts														**0**						**0**
Michigan	53	3	11	2	7	6		1	3	8	1		1	**96**	21	2	1		4	**28**
Minnesota	12		2	2	3				2				3	**24**	6	1			2	**9**
Missouri	14	1	2	2				2					1	**22**	1	2			1	**4**
Montana	20	2	9	1	10	2				4				**48**	1				7	**8**
Nevada	4	1	5	2	3					24				**39**	3				1	**4**
New Hampshire														**0**						**0**
New Jersey	3	1			1							12	1	**18**	2	1				**3**
New Mexico			3		3									**6**		1				**1**
New York	2		3	1										**6**	2				2	**4**
North Carolina			1											**1**					2	**2**
Ohio														**0**						**0**
Oklahoma														**0**						**0**
Oregon	1								1					**2**						**0**

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Pennsylvania	1													1						0
South Carolina														0						0
South Dakota	3	1	1		2			1						8						0
Tennessee	3		2		2									7	1					1
Texas														0						0
Utah	7	1	7	4	1			2		1			2	25	4	1			4	9
Vermont														0						0
Virginia	2													2						0
Washington											1			1						0
Wisconsin	2													2	1					1
Wyoming														0						0
Total	191	10	62	20	47	14		15	10	37	8	12	10	436	57	18	4		27	106
SERIOUSLY INJURED:																				
Alabama	41	9	7	55	2		7		2				6	129						0
Arizona	128	26	7	45	20		4	1	4				48	283	6	5		3	6	20
Arkansas														0						0
California	38	8	1	4	4		6		6				12	79	1	2			7	10
Colorado	80	1	6	7	6		1		3				6	110	2				3	5
Connecticut	1													1						0
Florida														0						0
Georgia	1		1											2						0
Idaho	16	5	2	3	2	1	1		3				4	37						0
Illinois	1								1				2	4	2					2
Indiana and West Virginia														0						0
Iowa	2			2										4						0
Kansas	4			1			1							6						0
Kentucky						1			2				2	5						0
Maine														0						0
Maryland				2										2						0
Massachusetts														0						0
Michigan	399	86	21	268	53	51	114		40				90	1,122	12	10	1	3	12	38
Minnesota	212	106	24	124	39	19	18	2	20				89	653	6	11		1	8	26
Missouri	43	2	19	13	4		4		8				8	101	4	4	1		5	14
Montana	55	3	6	13	11	8			5				12	113	1	1		1	5	8
Nevada	21		6	3	2	1	6		2					41	1	5			2	8
New Hampshire														0						0
New Jersey	10	1	1	2		2			2				4	22	2				1	3
New Mexico	4	1	7		1		1							14	1					1
New York	27	1	6	10	2	3	9		1				10	69		1			3	4
North Carolina	3	1	1	3										8						0
Ohio	3			3					1				1	8						0
Oklahoma		1												1						0
Oregon	1					1							1	3		1				1
Pennsylvania														0						0
South Carolina														0						0
South Dakota	10	1	3	6		10							4	34						0
Tennessee	11	5	4	8	2	3	9						1	43	1				1	2
Texas														0						0
Utah	78	4	10	28	11	3	7		4				10	155	1			4	3	0
Vermont														0						8

TABLE 17.—*Number of men killed, seriously injured, and slightly injured in and about all* **metal** *and* **miscellaneous mineral** *mines in the United States (by States) in the calendar year 1911*—Continued.

States.	Underground.														Shaft.					
	By fall of rock or ore from roof of wall.	By timber or hand tools.	By explosives.	By haulage accidents.	By falling down chute, winze, raise, or stope.	By run of ore from chute or pocket.	By drilling machine.	By electricity (shock or burns).	By machinery (other than mine locomotives or machine drills).	By mine fires.	By suffocation from natural gas.	By inrush of water.	By other causes.	**Total, underground.**	By falling down shaft.	By objects falling down shafts.	By breaking of cables.	By overwinding.	By other causes.	**Total, shaft accidents.**
	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	
SERIOUSLY INJURED—Continued.																				
Virginia	9	1	1	4	1	1	1		1				1	**20**						**0**
Washington	2		2				1							**5**						**0**
Wisconsin	14	5	4	2	1	1			1		1		7	**36**	2				1	**3**
Wyoming														**0**						**0**
Total	1,214	267	139	606	161	105	190	3	106		1		318	**3,110**	42	40	2	12	57	**153**
SLIGHTLY INJURED:																				
Alabama	377	97	16	267	9	3	114		21				257	**1,161**					1	**1**
Arizona	995	290	27	224	120	21	84	8	28	7			120	**1,924**	8	18	1	1	19	**47**
Arkansas	4	1					1							**6**						**0**
California	116	25	11	21	6	10	17	2	7		8	7	63	**293**	3	3			5	**11**
Colorado	199	34	13	35	26	8	31	1	27		4		122	**500**	2	13			6	**21**
Connecticut			1											**1**						**0**
Florida														**0**						**0**
Georgia														**0**						**0**
Idaho	203	43	3	54	24	7	72		3				132	**541**				2	8	**10**
Illinois	7	3					6						4	**20**						**0**
Indiana and West Virginia													1	**1**						**0**
Iowa	10			1									3	**14**						**0**
Kansas	23	1		3		3	9		4				13	**56**						**0**
Kentucky		1											1	**2**						**0**
Maine														**0**						**0**
Maryland	2			1					2				2	**7**						**0**
Massachusetts														**0**						**0**
Michigan	1,502	489	37	1,349	287	452	465	6	265	6			628	**5,486**	11	48	3	4	36	**102**
Minnesota	1,078	467	51	347	67	54	103	3	128		4	1	851	**3,154**	15	23			25	**63**
Missouri	256	24	15	134	34	4	95	3	34	2			276	**877**	5	82	1	1	24	**113**
Montana	522	52	11	99	92	50	2	1	3	1			120	**953**	2	9			9	**20**
Nevada	60	15	5	18	17	5	23	1	4	6		2	25	**181**		2		1	9	**12**

New Hampshire	1													**1**						**0**
New Jersey	53	94	4	56	2	81	45	1	4				34	**374**	1				4	**5**
New Mexico	8	1	3	1	2									**15**		1			2	**3**
New York	37	15	8	48	2	7	17	2	4				91	**231**	1	3			19	**23**
North Carolina	6	2	1	4									1	**14**						**0**
Ohio	4	4	4	6	1		3					1	8	**31**						**0**
Oklahoma	1			3										**4**					1	**1**
Oregon	2	3					1		1				1	**8**		1			1	**2**
Pennsylvania	5													**5**						**0**
South Carolina														**0**						**0**
South Dakota	64	19	9	76	13	134	37						270	**622**		3		1	1	**5**
Tennessee	41	34	10	63	7	5	24		2				16	**202**	2	6			2	**10**
Texas														**0**						**0**
Utah	349	58	10	85	26	21	41	1	31				44	**666**		2		3	8	**13**
Vermont			1											**1**						**0**
Virginia	20	5	1	12	1	6	3		7				14	**69**						**0**
Washington	7	2	1				1							**11**						**0**
Wisconsin	90	17		17	11	5	12	1	1	2	1	3	48	**208**	1	2		1	7	**11**
Wyoming													2	**3**						**0**
Total	6,042	1,796	242	2,924	747	876	1,207	30	576	24	17	14	3,147	**17,642**	51	216	5	14	187	**473**

TABLE 17.—*Number of men killed, seriously injured, and slightly injured in and about all* **metal** *and* **miscellaneous mineral** *mines in the United States (by States) in the calendar year 1911*—Continued.

States.	Surface.								Surface (where surface mining is done).													
	By mine cars and mine locomotives.	By railway cars and locomotives.	By run or fall of ore in or from ore bins.	By boiler explosions.	By electricity (shock or burns).	By machinery.	By other causes.	**Total, surface.**	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By railway cars or locomotives (not used in mine).	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity (shock or burns).	By boiler explosions.	By other causes.	**Total, surface accidents (where surface mining is done).**	**Grand total.**
	19	**20**	**21**	**22**	**23**	**24**	**25**		**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**		
KILLED—Continued from p. 42.																						
Alabama								**0**	1											1	**2**	**10**
Arizona		1	1		1	1	3	**7**									2				**2**	**70**
Arkansas								**0**													**0**	**2**
California			1				4	**5**	2												**2**	**38**
Colorado	1				1	3	2	**7**													**0**	**43**
Connecticut								**0**													**0**	**0**
Florida								**0**	1		4		1		1		1			1	**9**	**9**
Georgia								**0**	1										1		**2**	**2**
Idaho							*a* 8	**8**													**0**	**23**
Illinois								**0**													**0**	**1**
Indiana and West Virginia								**0**	1												**1**	**1**
Iowa								**0**													**0**	**1**
Kansas								**0**													**0**	**2**
Kentucky								**0**													**0**	**3**
Maine								**0**													**0**	**0**
Maryland								**0**													**0**	**0**
Massachusetts								**0**													**0**	**0**
Michigan		3	1			1	5	**10**													**0**	**134**
Minnesota						1	1	**2**	17	9	12	1		1						1	**41**	**76**
Missouri		3		6			1	**10**	1										1		**2**	**38**
Montana	1	1				2	1	**5**												1	**1**	**62**
Nevada							2	**2**	2	2	1										**5**	**50**
New Hampshire								**0**													**0**	**0**
New Jersey							1	**1**					1								**1**	**23**
New Mexico							1	**1**		3											**3**	**11**
New York								**0**													**0**	**10**
North Carolina								**0**	1												**1**	**4**
Ohio								**0**													**0**	**0**
Oklahoma								**0**													**0**	**0**
Oregon								**0**													**0**	**2**

Pennsylvania								**0**													**0**	**1**
South Carolina								**0**													**0**	**0**
South Dakota								**0**													**0**	**8**
Tennessee	1							**1**	1												**1**	**10**
Texas								**0**													**0**	**0**
Utah	1						*b* 5	**6**	6	1	1		1								**9**	**49**
Vermont								**0**													**0**	**0**
Virginia								**0**	1	1					2						**4**	**6**
Washington							2	**2**													**0**	**3**
Wisconsin								**0**													**0**	**3**
Wyoming								**0**													**0**	**0**
Total	4	8	3	6	2	8	36	**67**	35	16	18	1	3	1	3		3		2	4	**86**	**695**
SERIOUSLY INJURED—Continued from p. 43.																						
Alabama	6		2			2		**10**	2	2	6	1		1	1					1	**14**	**153**
Arizona	2	1				6	20	**29**									2	1		1	**4**	**336**
Arkansas						1	1	**2**													**0**	**2**
California	1	2	1	1		9	10	**24**	1				1	4			1		1	2	**10**	**123**
Colorado	2		1		1	3	6	**13**													**0**	**128**
Connecticut								**0**													**0**	**1**
Florida								**0**	2	5	8		1		1		9		1	7	**34**	**34**
Georgia								**0**	2	3		1						1			**7**	**9**
Idaho							3	**3**								1	1			1	**3**	**43**
Illinois							1	**1**													**0**	**7**
Indiana and West Virginia								**0**													**0**	**0**
Iowa								**0**													**0**	**4**
Kansas							2	**2**					1								**1**	**9**
Kentucky								**0**													**0**	**5**
Maine								**0**													**0**	**0**
Maryland							1	**1**													**0**	**3**
Massachusetts								**0**													**0**	**0**
Michigan	20	7	9			23	49	**108**													**0**	**1,268**
Minnesota	5	1	2	1		20	42	**71**	54	23	88	53	40	2	5	3	17	1	1	94	**381**	**1,131**
Missouri	2			3		9	5	**19**					1				1		2	2	**6**	**140**
Montana	1					2	10	**13**			1		2				1				**4**	**138**
Nevada		1				2	1	**4**	8	4	4	4		2							**22**	**75**
New Hampshire								**0**													**0**	**0**
New Jersey			4			1	2	**4**													**0**	**29**
New Mexico						1	2	**3**		1	3		1	1			5			1	**12**	**30**
New York	1					2	7	**10**													**0**	**83**
North Carolina		3						**3**													**0**	**11**
Ohio						1		**1**													**0**	**9**
Oklahoma								**0**		1											**1**	**2**
Oregon								**0**													**0**	**4**
Pennsylvania								**0**													**0**	**0**
South Carolina								**0**													**0**	**0**
South Dakota	3						2	**5**													**0**	**39**
Tennessee	1							**1**	2								4				**6**	**52**
Texas								**0**													**0**	**0**
Utah	5					2	2	**9**	18	2	4	3	3				2				**32**	**204**

a Killed by snowslides.

b Includes 4 killed by snowslides.

TABLE 17.—*Number of men killed, seriously injured, and slightly injured in and about all* ***metal*** *and* ***miscellaneous mineral*** *mines in the United States (by States) in the calendar year 1911*—Continued.

States.	Surface.								Surface (where surface mining is done).													
	By mine cars and mine locomotives.	By railway cars and locomotives	By run or fall of ore in or from ore bins.	By boiler explosions.	By electricity (shock or burns).	By machinery.	By other causes.	Total, surface.	By falls or slides of rock or ore.	By explosives.	By mine cars or locomotives used in mine.	By steam shovels.	By falls of persons.	By falls of derricks, booms, etc.	By railway cars or locomotives (not used in mine).	By run or fall of ore in or from ore bins.	By machinery (other than locomotives or steam shovels).	By electricity (shock or burns).	By boiler explosions.	By other causes.	Total, surface accidents (where surface mining is done).	Grand total.
	19	20	21	22	23	24	25		26	27	28	29	30	31	32	33	34	35	36	37		
SERIOUSLY INJURED—Continued.																						
Vermont								0													0	0
Virginia						1	2	3	5			2					2				10	33
Washington								0												1	1	6
Wisconsin	1					7	9	17							1		1				2	58
Wyoming								0													0	0
Total	50	15	16	5	1	92	177	356	94	41	115	64	50	10	8	4	46	3	5	110	550	4,169
SLIGHTLY INJURED—Continued from p. 44.																						
Alabama	14	3	9			23	20	69	7	1	14	9	5	1	1		7			8	53	1.284
Arizona	17	8	5		2	32	205	269	1	1			1				67	4			74	2,314
Arkansas							1	1	1							1					2	9
California	6	2	1		1	8	19	37	3	4	3	2	20	2			6	1		19	60	401
Colorado	11	1	2		2	16	50	82	6		1										7	610
Connectcut								0													0	1
Florida								0	14	3	27		1		7		43	1		28	124	124
Georgia	2					1	2	5	4		1		1				2				8	13
Idaho	3	1			1	4	14	23					1								1	575
Illinois								0													0	20
Indiana and West Virginia								0													0	1
Iowa							4	4													0	18
Kansas	3					1	9	13													0	69
Kentucky								0					1							10	11	13
Maine								0													0	0
Maryland								0													0	7
Massachusetts								0													0	0
Michigan	18	8	59		14	80	314	493				1			1					1	3	6,084
Minnesota	24	4	6	2	1	65	179	281	176	50	210	125	157	30	7	3	67	2		734	1,561	5,059

Missouri	7	4	4	1		22	56	**94**	2	1	4			2			2		5	**16**	**1,100**
Montana			1			4	96	**101**		1										**1**	**1,075**
Nevada	6		1			2	6	**15**	15	9	16	9	11	18			9		3	**90**	**298**
New Hampshire								**0**												**0**	**1**
New Jersey		1	3			1	5	**10**												**0**	**389**
New Mexico	1							**1**	3	8	10	2	5	2			12		2	**44**	**63**
New York	3	1	1			1	11	**17**			1		1						1	**3**	**274**
North Carolina		6	1					**7**												**0**	**21**
Ohio							1	**1**												**0**	**32**
Oklahoma								**0**												**0**	**5**
Oregon						3	1	**4**								1				**1**	**15**
Pennsylvania								**0**												**0**	**5**
South Carolina								**0**	1											**1**	**1**
South Dakota	5						32	**37**			1									**1**	**665**
Tennessee			2					**2**		3	4	1					3		1	**12**	**226**
Texas								**0**												**0**	**0**
Utah	11					9	4	**24**	184	27	56	30	91	14			74	1	65	**542**	**1,245**
Vermont								**0**												**0**	**1**
Virginia	1	1				2	3	**7**	7	1	9								1	**18**	**94**
Washington							1	**1**	1										1	**2**	**14**
Wisconsin	3	2	5	1	1	15	11	**38**				1		2	4	4	9		1	**21**	**278**
Wyoming								**0**	1											**1**	**4**
Total	135	42	100	4	22	289	1,044	**1,636**	426	109	357	180	297	69	20	9	301	9	880	**2,657**	**22,408**

TABLE 18.—*Number of men employed, days worked, and the number of men killed and injured per 1,000 employed in and* ***about all metal*** *and* ***miscellaneous mineral*** *mines in the United States (by States) in the calendar year 1911.*

States.	Number of operators reporting.	Employees.			Days' work performed.	Average number of days worked.	Killed.					
		Underground.	Surface.	Total.			Underground[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.
Alabama	25	2,250	1,851	4,101	1,350,944	329	8	3.56	2	1.08	10	2.44
Arkansas	20	127	457	584	146,246	250	2	15.75	0	....	2	3.42
Arizona	352	9,171	3,597	12,768	3,686,479	288	61	6.65	9	2.50	70	5.48
California	855	7,065	3,812	10,877	3,061,843	282	31	4.39	7	1.84	38	3.49
Connecticut	6	70	94	164	45,644	272	0	....	0	....	0	....
Colorado	660	8,243	2,161	10,404	3,150,356	303	36	4.37	7	3.24	43	4.13
Florida	21	0	4,305	4,305	1,283,315	298	0	....	9	2.09	9	2.09
Georgia	33	162	839	1,001	241,242	241	0	....	2	2.38	2	2.00
Idaho	513	3,588	1,213	4,801	1,243,744	259	15	4.18	8	6.60	23	4.79
Illinois	15	468	380	848	233,963	276	1	2.14	0	....	1	1.18
Indiana and West Virginia	3	3	55	58	16,700	288	0	....	1	18.18	1	17.24
Iowa	14	207	37	244	70,550	289	1	4.83	0	....	1	4.10
Kansas	45	487	242	729	161,213	221	2	4.11	0	....	2	2.74
Kentucky	20	164	297	461	121,530	264	3	18.29	0	....	3	6.51
Maine	4	2	79	81	18,920	234	0	....	0	....	0	....
Maryland	20	72	159	231	53,292	231	0	....	0	....	0	....
Massachusetts	7	47	71	118	26,994	229	0	....	0	....	0	....
Michigan	74	22,470	9,114	31,584	9,385,524	297	124	5.52	10	1.10	134	4.24
Minnesota	40	7,673	8,875	16,548	4,175,782	252	33	4.30	43	4.85	76	4.59
Missouri	337	7,288	2,613	9,901	2,508,345	253	26	3.57	12	4.59	38	3.84
Montana	332	10,321	3,025	13,346	4,015,502	301	56	5.43	6	1.98	62	4.65
Nevada	472	4,292	1,918	6,210	1,829,108	295	43	10.02	7	3.65	50	8.05
New Hampshire	5	63	37	100	25,524	255	0	....	0	....	0	....
New Jersey	14	1,296	443	1,739	477,583	275	21	16.20	2	4.51	23	13.23
New Mexico	134	1,450	1,000	2,450	757,495	309	7	4.83	4	4.00	11	4.49
New York	32	2,297	905	3,202	930,133	290	10	4.35	0	....	10	3.12
North Carolina	57	659	338	997	169,983	170	3	4.55	1	2.96	4	4.01
Ohio	7	335	27	362	97,720	270	0	....	0	....	0	....
Oklahoma	32	238	180	418	82,620	198	0	....	0	....	0	....
Oregon	210	812	582	1,394	332,049	238	2	2.46	0	....	2	1.43
Pennsylvania	38	239	623	862	214,076	248	1	4.18	0	....	1	1.16
South Carolina	5	11	973	984	294,900	300	0	....	0	....	0	....
South Dakota	58	1,937	582	2,519	595,262	236	8	4.13	0	....	8	3.18
Tennessee	40	1,018	3,436	4,454	1,156,005	260	8	7.86	2	0.58	10	2.25
Texas	9	183	65	248	73,870	298	0	....	0	....	0	....
Utah	295	4,920	2,790	7,710	2,478,517	321	34	6.91	15	5.38	49	6.36
Vermont	10	38	142	180	42,639	237	0	....	0	....	0	....
Virginia	49	1,603	2,368	3,971	1,056,461	266	2	1.25	4	1.69	6	1.51
Washington	238	1,037	532	1,569	315,342	201	1	0.96	2	3.76	3	1.91
Wisconsin	78	2,054	790	2,844	736,463	259	3	1.46	0	....	3	1.05
Wyoming	53	263	349	612	162,695	266	0	....	0	....	0	....
Total	5,232	104,623	61,356	165,979	46,826,573	282	542	5.18	153	2.49	695	4.19

States.	Seriously injured.						Slightly injured.						Widows.	Orphans.
	Underground[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.	Underground[a]	Per 1,000 employed.	Surface.	Per 1,000 employed.	Total.	Per 1,000 employed.		
Alabama	129	57.33	24	12.97	153	37.31	1,162	516.44	122	65.91	1,284	313.12	8	14
Arkansas	0	....	2	4.38	2	3.42	6	47.24	3	6.56	9	15.41	2	6
Arizona	303	33.04	33	9.18	336	26.32	1,971	214.92	343	95.36	2,314	181.32	20	22
California	89	12.60	34	8.92	123	11.31	304	43.03	97	25.45	401	36.87	8	15
Connecticut	1	14.29	0	....	1	6.10	1	14.29	0	....	1	6.10	0	0
Colorado	115	13.95	13	6.02	128	12.30	521	63.21	89	41.18	610	58.63	14	24
Florida	0	....	34	7.90	34	7.90	0	....	124	28.80	124	28.80	1	0
Georgia	2	12.35	7	8.34	9	8.99	0	....	13	15.49	13	12.99	1	0
Idaho	37	10.31	6	4.95	43	8.96	551	153.57	24	19.79	575	119.77	6	12
Illinois	6	12.82	1	2.63	7	8.25	20	42.74	0	....	20	23.58	0	0
Indiana and West Virginia	0	....	0	....	0	....	1	333.33	0	....	1	17.24	1	4
Iowa	4	19.32	0	....	4	16.39	14	67.63	4	108.11	18	73.77	1	2
Kansas	6	12.32	3	12.40	9	12.35	56	114.99	13	53.72	69	94.65	2	1
Kentucky	5	30.49	0	....	5	10.85	2	12.20	11	37.04	13	28.20	0	0
Maine	0	....	0	....	0	....	0	....	0	....	0	....	0	0
Maryland	2	27.78	1	6.29	3	12.99	7	97.22	0	....	7	30.30	0	0
Massachusetts	0	....	0	....	0	....	0	....	0	....	0	....	0	0
Michigan	1,160	51.62	108	11.85	1,268	40.15	5,588	248,69	496	54.42	6,084	192.63	74	174
Minnesota	679	88.49	452	50.93	1,131	68.35	3,217	419.26	1,842	207.55	5,059	305.72	39	80
Missouri	115	15.78	25	9.57	140	14.14	990	135.84	110	42.10	1,100	111.10	22	33
Montana	121	11.72	17	5.62	138	10.34	973	94.27	102	33.72	1,075	80.55	23	46
Nevada	49	11.42	26	13.56	75	12.08	193	44,97	105	54.74	298	47.99	14	19
New Hampshire	0	....	0	....	0	....	1	15.87	0	....	1	10.00	0	0
New Jersey	25	19.29	4	9.03	29	16.68	379	292.44	10	22.57	389	223.69	16	40
New Mexico	15	10.34	15	15.00	30	12.24	18	12.41	45	45.00	63	25.71	5	12
New York	73	31.78	10	11.05	83	25.92	254	110.58	20	22.10	274	85.57	3	2
North Carolina	8	12.14	3	8.88	11	11.03	14	21.24	7	20.71	21	21.06	4	10
Ohio	8	23.88	1	37.04	9	24.86	31	92.54	1	37.04	32	88.40	0	0
Oklahoma	1	4.20	1	5.56	2	4.78	5	21.01	0	....	5	11.96	0	0
Oregon	4	4.93	0	....	4	2.87	10	12.32	5	8.59	15	10.76	1	4
Pennsylvania	0	....	0	....	0	....	5	20.92	0	....	5	5.80	1	3
South Carolina	0	....	0	....	0	....	0	....	1	1.03	1	1.02	0	0
South Dakota	34	17.55	5	8.59	39	15.48	627	323.70	38	65.29	665	263.99	5	17
Tennessee	45	44.20	7	2.04	52	11.67	212	208.25	14	4.07	226	50.74	8	16
Texas	0	....	0	....	0	....	0	....	0	....	0	....	0	0
Utah	163	33.13	41	14.70	204	26.46	679	138.01	566	202.87	1,245	161.48	14	36
Vermont	0	....	0	....	0	....	1	26.32	0	....	1	5.56	0	0
Virginia	20	12.48	13	5.49	33	8.31	69	43.04	25	10.56	94	23.67	1	3
Washington	5	4.82	1	1.88	6	3.82	11	10.61	3	5.64	14	8.92	2	3
Wisconsin	39	18.99	19	24.05	58	20.39	219	106.62	59	74.68	278	97.75	1	2
Wyoming	0	....	0	....	0	....	3	11.41	1	2.87	4	6.54	0	0
Total	3,263	31.19	906	14.77	4,169	25.12	18,115	173.15	4,293	69.97	22,408	135.01	297	600

[a] Includes shaft accidents.

TABLE 19.—*Percentage of number killed and seriously and slightly injured in the* **metal** *and* **miscellaneous mineral** *mines in the United States in the calendar year 1911, by causes and compared for the different groups of mines.*

Cause of death or injury.	Killed.						Seriously injured.						Slightly injured.					
	Copper mines.	Iron mines.	Lead and zinc mines, Mississippi Valley.	Miscellaneous metal mines.	Nonmetal mines.	Average for all mines.	Copper mines.	Iron mines.	Lead and zinc mines, Mississippi Valley.	Miscellaneous metal mines.	Nonmetal mines.	Average for all mines.	Copper mines.	Iron mines.	Lead and zinc mines, Mississippi Valley.	Miscellaneous metal mines.	Nonmetal mines.	Average for all mines.
AT UNDERGROUND MINES.																		
By fall of rock or ore from roof or wall	34.46	22.84	41.86	20.72	25.00	27.48	35.44	22.98	29.94	38.33	18.09	29.12	31.09	24.04	25.40	25.05	14.70	26.96
By timber or hand tools	2.52	0.51	2.33	1.04	......	1.44	5.13	8.71	1.69	3.52	......	6.41	7.99	9.05	2.52	8.12	1.92	8.02
By explosives	7.56	5.58	6.98	12.43	25.00	8.92	1.66	2.81	10.73	6.67	5.32	3.33	0.82	1.03	1.14	1.76	2.88	1.08
By haulage accidents	2.10	3.05	4.65	3.63	......	2.88	20.44	13.38	8.47	7.41	8.51	14.54	17.55	10.15	10.83	9.29	10.22	13.05
By falling down chute, winze, raise, or stope	7.99	5.08	......	9.32	......	6.76	4.45	3.69	2.26	3.89	2.13	3.86	5.43	1.35	3.13	3.18	0.32	3.33
By run of ore from chute or pocket	2.52	1.02	......	3.11	......	2.01	3.09	2.26	......	3.15	1.06	2.52	4.97	1.81	0.92	8.38	0.32	3.91
By drilling accidents	......	......	......	......	......	......	6.86	3.25	2.83	4.44	4.26	4.56	5.25	4.34	8.84	7.60	2.24	5.39
By electricity (shock or burns)	2.52	......	4.65	3.63	......	2.16	0.08	0.10	......	......	......	0.07	0.14	0.10	0.31	0.13	......	0.13
By machinery (other than mine locomotives or machine drills)	1.26	1.02	......	2.59	......	1.44	2.79	1.82	6.22	3.33	3.19	2.54	3.18	2.19	2.90	1.72	2.55	2.57
By mine fires	5.04	4.05	......	8.81	......	5.32	......	......	......	......	......	......	0.08	0.07	0.31	0.23	......	0.11
By suffocation from natural gases	0.84	0.51	......	2.59	......	1.15	......	......	0.57	......	......	0.02	0.09	0.05	0.08	0.13	......	0.08
By inrush of water	......	6.09	......	......	......	1.73	......	......	......	......	......	......	......	0.01	0.23	0.29	0.32	0.06
By other causes	0.42	2.53	4.65	1.04	......	1.44	6.86	8.37	7.35	7.04	6.38	7.63	6.55	17.85	22.65	21.48	15.01	14.04
Total killed or injured underground.	**67.23**	**52.28**	**65.12**	**68.91**	**50.00**	**62.73**	**86.80**	**67.37**	**70.06**	**77.78**	**48.94**	**74.60**	**83.14**	**72.04**	**79.26**	**87.36**	**50.48**	**78.73**
By falling down shaft	7.14	11.67	2.33	8.30	......	8.20	0.90	0.83	2.83	1.30	1.06	1.01	0.12	0.26	0.46	0.36	......	0.23
By objects falling down shaft	2.10	1.52	4.65	4.15	......	2.59	0.90	0.89	2.26	1.11	......	0.96	0.49	0.68	6.41	0.91	0.32	0.96
By breaking of cables	......	0.51	......	1.55	......	0.58	0.08	......	0.57	......	......	0.05	0.05	......	0.08	......	......	0.02
By overwinding	......	......	......	......	......	......	0.23	0.20	......	0.92	......	0.29	......	0.05	0.15	0.26	......	0.06
By other causes	7.14	3.05	2.33	1.55	......	3.88	1.06	1.13	2.83	2.78	......	1.36	0.53	0.77	2.21	1.40	......	0.84
Total killed or injured in shaft	**16.38**	**16.75**	**9.31**	**15.55**	**0**	**15.25**	**3.17**	**3.05**	**8.49**	**6.11**	**1.06**	**3.67**	**1.19**	**1.76**	**9.31**	**2.93**	**0.32**	**2.11**
By mine cars and mine locomotives	......	0.51	......	1.55	......	0.58	0.38	1.57	1.69	1.48	2.13	1.20	0.31	0.68	0.76	1.14	0.95	0.60
By railway cars and locomotives	1.26	1.02	6.98	......	......	1.15	0.30	0.44	......	0.37	......	0.36	0.13	0.23	0.46	0.10	0.32	0.19
By run or fall of ore in or from ore bins	0.42	0.51	......	0.52	......	0.43	0.61	0.30	......	0.37	......	0.38	0.60	0.33	0.69	0.26	......	0.44
By boiler explosions	......	......	13.94	......	......	0.86	......	0.05	1.69	0.19	......	0.12	......	0.02	0.15	......	......	0.02
By electricity (shock or burns)	0.42	......	......	0.52	......	0.29	......	......	......	0.19	......	0.02	0.17	0.01	0.08	0.16	......	0.10
By machinery	1.26	1.02	......	1.55	......	1.15	0.75	2.21	9.02	3.70	1.06	2.21	0.74	1.65	2.82	1.24	1.28	1.29
By other causes	5.89	2.02	2.33	8.81	......	5.18	2.94	4.68	6.22	5.18	4.26	4.25	5.51	3.95	5.25	4.09	2.88	4.66
Total killed or injured on surface	**9.25**	**5.08**	**23.25**	**12.95**	**0**	**9.64**	**4.98**	**9.25**	**18.62**	**11.48**	**7.45**	**8.54**	**7.46**	**6.87**	**10.21**	**6.99**	**5.43**	**7.30**

AT SURFACE MINES.																		
By falls or slides of rock or ore	2.94	11.15	......	1.55	12.49	5.04	1.96	3.10	......	0.37	3.19	2.25	2.21	2.24	0.15	0.45	5.11	1.90
By explosives	2.10	5.08	......	......	4.17	2.31	0.53	1.28	......	0.37	6.38	0.98	0.50	0.62	0.08	0.16	1.28	0.49
By mine cars or locomotives used in mine	0.84	6.09	......	......	16.66	2.59	0.75	4.68	......	0.37	8.51	2.76	0.88	2.72	0.15	0.26	10.22	1.59
By steam shovels	......	0.51	......	......	......	0.14	0.38	2.81	......	0.37	......	1.54	0.44	1.57	......	0.13	......	0.80
By falls of persons	0.42	......	......	0.52	4.17	0.43	0.30	1.97	1.13	0.56	1.06	1.20	1.20	1.91	......	0.68	0.64	1.33
By falls of derricks, booms, etc	......	0.51	......	......	......	0.14	0.23	0.15	......	0.73	......	0.24	0.38	0.36	0.15	0.06	......	0.31
By railway cars or locomotives (not used in mine)	......	1.02	......	......	4.17	0.43	......	0.34	......	......	1.06	0.19	......	0.15	......	......	2.24	0.09
By run or fall of ore in or from ore bins	......	......	......	......	......	......	......	0.14	......	0.19	......	0.10	......	0.08	0.08	0.03	......	0.04
By machinery (other than locomotives or steam shovels)	0.84	......	......	......	4.17	0.43	0.67	1.03	......	0.56	13.84	1.10	1.80	0.99	0.15	0.20	14.38	1.34
By electricity (shock or burns)	......	......	......	......	......	......	0.08	0.10	......	......	......	0.07	0.03	0.02	......	0.10	0.32	0.04
By boiler explosions	......	0.51	2.33	......	......	0.29	......	0.05	1.13	0.19	1.06	0.12	......	......	......	......	......	......
By other causes	......	1.02	......	0.52	4.17	0.58	0.15	4.68	0.57	0.92	7.45	2.64	0.77	8.67	0.46	0.65	9.58	3.93
Total killed or injured by surface accidents (where surface mining is done)	**7.14**	**25.89**	**2.33**	**2.59**	**50.00**	**12.38**	**5.05**	**20.33**	**2.83**	**4.63**	**42.55**	**13.19**	**8.21**	**19.33**	**1.22**	**2.72**	**43.77**	**11.86**
Grand total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

PUBLICATIONS ON MINE ACCIDENTS AND METHODS OF MINING.

The following Bureau of Mines publications may be obtained free by applying to the Director, Bureau of Mines, Washington, D. C.

BULLETIN 10. The use of permissible explosives, by J. J. Rutledge and Clarence Hall. 1912. 34 pp., 5 pls., 4 figs.

BULLETIN 17. A primer on explosives for coal miners, by C. E. Munroe and Clarence Hall. 61 pp., 10 pls., 12 figs. Reprint of United States Geological Survey Bulletin 423.

BULLETIN 20. The explosibility of coal dust, by G. S. Rice, with chapters by J. C. W. Frazer, Axel Larson, Frank Haas, and Carl Scholz. 204 pp., 14 pls., 28 figs. Reprint of United States Geological Survey Bulletin 425.

BULLETIN 44. First national mine-safety demonstration, Pittsburgh, Pa., October 30 and 31, 1911, by H. M. Wilson and A. H. Fay, with a chapter on the explosion at the experimental mine, by G. S. Rice. 1912. 75 pp., 7 pls., 4 figs.

BULLETIN 46. An investigation of explosion-proof mine motors, by H. H. Clark. 1912. 44 pp., 6 pls., 14 figs.

BULLETIN 48. The selection of explosives used in engineering and mining operations, by Clarence Hall and S. P. Howell. 1913. 50 pp., 3 pls., 7 figs.

BULLETIN 52. Ignition of mine gases by the filaments of incandescent electric lamps, by H. H. Clark and L. C. Ilsley. 1913. 31 pp., 6 pls., 2 figs.

TECHNICAL PAPER 11. The use of mice and birds for detecting carbon monoxide after mine fires and explosions, by G. A. Burrell. 1912. 15 pp.

TECHNICAL PAPER 13. Gas analysis as an aid in fighting mine fires, by G. A. Burrell and F. M. Seibert. 1912. 16 pp., 1 fig.

TECHNICAL PAPER 19. The factor of safety in mine electrical installations, by H. H. Clark. 1912. 14 pp.

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MINERS' CIRCULAR 4. The use and care of mine-rescue breathing apparatus, by J. W. Paul. 1911. 24 pp., 5 figs.

MINERS' CIRCULAR 5. Electrical accidents in mines; their causes and prevention, by H. H. Clark, W. D. Roberts, L. C. Ilsley, and H. F. Randolph. 1911. 10 pp., 3 pls.

MINERS' CIRCULAR 6. Permissible explosives tested prior to January 1, 1912, and precautions to be taken in their use, by Clarence Hall. 1912. 20 pp.

MINERS' CIRCULAR 9. Accidents from falls of roof and coal, by G. S. Rice. 1912. 16 pp.

MINERS' CIRCULAR 10. Mine fires and how to fight them, by J. W. Paul. 1912. 14 pp.

MINERS' CIRCULAR 11. Accidents from mine cars and locomotives, by L. M. Jones. 1912. 16 pp.

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